2.11. Banana

The banana (Muse sapientum) is a fruit with high consumer's preference to be consumed in fresh. Data of the DGEEC indicate that per-cápita consumption in the metropolitan area is 58,5 daily grams. In the country the main marketed varieties belong to the group Nanicao.

The banana production most important production areas are located the departments of San Pedro, Caaguazú and Cordillera, that together produced in the year 2001 approximately 32.546 tons, representing around 50% of the total national production of banana, *Table E-1, Annex E.*

The banana plantations can be carried out in our country depending on the type of seedling used is carried out during the months of August to May. Nevertheless, the national product is supplied during the whole year and the supply increase in April and May, *Table E-2, Annex E.*

2.11.1. Channels of commercialization

The main agents involved in the commercialization of bananas constitute the national producers, wholesalers, retailers and consumers. The commercialization flow charts presented in *Figure 31 and 32* illustrate the national market of commercialization, according to the main involved agents. The study estimated that in the process of commercialization of this produce a global loss of 20% exists (12.125 tons) on the total supply.

The methodology used for the construction of the commercialization flow charts in volume and value is presented next:

Table 109-A: Methodology to estimate banana commercialization volume– National supply. Year 2002

Oferta	*Volumen (Tn)*	**Metodología de estimación**	*Fuente*
Producción Nacional Disponible	49.793	1. Promedio de los últimos años (1996-2001), de la producción nacional (66.391 Tn) 2. Se estima una pérdida por cosecha de 25%. (16.598 Tn) 3. Producción Nacional Disponible (1-2) = 49.793 Tn	▪ DCEA
Importación Registrada	1.567	4. Datos sistematizados en base a registros de Aduanas (Sistema SOFIA) = 1.567 Tn	▪ DGA
Importación No Registrada	9.263	**(A) Estimación de volumen ingresado al país, de origen brasilero, no registrado:** 5. Volumen comercializado en CEASA-PR (Foz de Yguazú), año 2002 (11.771 Tn), se estima un 80% que ingresa al país = 9.417 Tn 6. Estimación de ingreso desde otros mercados de Foz de Iguazú. Se estima un 15% del volumen ingresado desde CEASA (9.417 x 15%) = 1.413 Tn 7. Volumen Total estimado de ingreso desde Brasil (5 + 6) = 10.830 Tn	Registros de CEASA-PR (Central de Curitiba) y estimación dada por Directivos de CEASA-PR (Foz de Yguazú) y entrevistas con mayoristas de DAMA
		8. Ingreso registrado al país (Base de datos de Sistema SOFÍA), de origen brasilero = 1.567 Tn 9. Volumen de ingreso de origen brasilero No Registrado = (7 - 8) = 9.263 Tn	▪ DGA
		(B) Estimación de volumen ingresado al país, de origen argentino, no registrado: 10. Se consideran las proporciones de ingreso de banana de origen extranjero en DAMA, Brasil (100%) y Argentina (0%) como iguales a las proporciones de ingreso al Paraguay desde Argentina y Brasil. 11. Estimación del volumen total ingresado al Paraguay, en base al cálculo de lo ingresado desde el Brasil (10.830 x 100/100) = 10.830 Tn 12. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen argentino: (0 Tn).	
Total oferta	**60.623**		

Table 109-B: Methodology to estimate volume of banana marketed by wholesalers. Year 2002

Oferta	*Volumen (Tn)*	**Metodología de estimación**	*Fuente*
Producción Nacional Disponible	49.793	1. Promedio de los últimos años (1996-2001), de la producción nacional (66.391 Tn) 2. Se estima una pérdida por cosecha de 25%. (16.598 Tn) 3. Producción Nacional Disponible (1-2) = 49.793 Tn	▪ DCEA
Importación Registrada	1.567	4. Datos sistematizados en base a registros de Aduanas (Sistema SOFIA) = 1.567 Tn	▪ DGA
Importación No Registrada	9.263	**(A) Estimación de volumen ingresado al país, de origen brasilero, no registrado:** 5. Volumen comercializado en CEASA-PR (Foz de Yguazú), año 2002 (11.771 Tn), se estima un 80% que ingresa al país = 9.417 Tn 6. Estimación de ingreso desde otros mercados de Foz de Iguazú. Se estima un 15% del volumen ingresado desde CEASA (9.417 x 15%) = 1.413 Tn 7. Volumen Total estimado de ingreso desde Brasil (5 + 6) = 10.830 Tn	Registros de CEASA-PR (Central de Curitiba) y estimación dada por Directivos de CEASA-PR (Foz de Yguazú) y entrevistas con mayoristas de DAMA
		8. Ingreso registrado al país (Base de datos de Sistema SOFÍA), de origen brasilero = 1.567 Tn 9. Volumen de ingreso de origen brasilero No Registrado = (7 - 8) = 9.263 Tn	▪ DGA
		(B) Estimación de volumen ingresado al país, de origen argentino, no registrado: 10. Se consideran las proporciones de ingreso de banana de origen extranjero en DAMA, Brasil (100%) y Argentina (0%) como iguales a las proporciones de ingreso al Paraguay desde Argentina y Brasil. 11. Estimación del volumen total ingresado al Paraguay, en base al cálculo de lo ingresado desde el Brasil (10.830 x 100/100) = 10.830 Tn 12. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen argentino: (0 Tn).	
Total oferta	**60.623**		

Table 109-C: Methodology to estimate volume of banana marketed by retailers. Year 2002

Minoristas	*Volumen (tn)*	*Metodología de estimación*	*Fuente*
Supermercado	2.041		Entrevistas a Gerente de Supermercados
(A) Directo de oferta		(A) 1. Se estimó un 5% sobre el volumen total de ingreso extranjero (10.830 x 5%) =541 tn 2. Se estima un volumen de compra directa de productores: 1.500tTn 3. Total de compra directa (1+2) = 2.041Tn	
(B) A través de mayoristas	14.870	(B) 1. Mayoristas DAMA: Se estimó un porcentaje promedio de venta a supermercados por mayoristas para los grupos II y III, en base al volumen total comercializado en DAMA. Para el Grupo I se determinó según lo manifestado por cada mayorista:	Entrevistas con Mayoristas

	Volumen venta a Supermercado (tn)	Porcentaje Promedio (%)	Total (tn)
GI Mayorista 1	1.050	80	840
Mayorista 2	0	30	0
GII	8.640	70	6.048
GIII	13.755	30	4.127
Total	23.445		11.015

2. Mayoristas No-DAMA: Se estimó en base al porcentaje promedio de venta a supermercados por mayoristas del Gran Asunción ubicados fuera de DAMA
1.274 x 92,02% = 1.172 tn

3. Estimación del porcentaje promedio de venta a supermercados por mayoristas de Otras Localidades.

		Fuente
Ciudad del Este	= 0 tn	Entrevista a Gerentes de supermercados
Encarnación: 3.840 x 69%	= 2.650 tn	Entrevista a técnico del MAG
Cnel.Oviedo: 110 x 30%	= 33 tn	

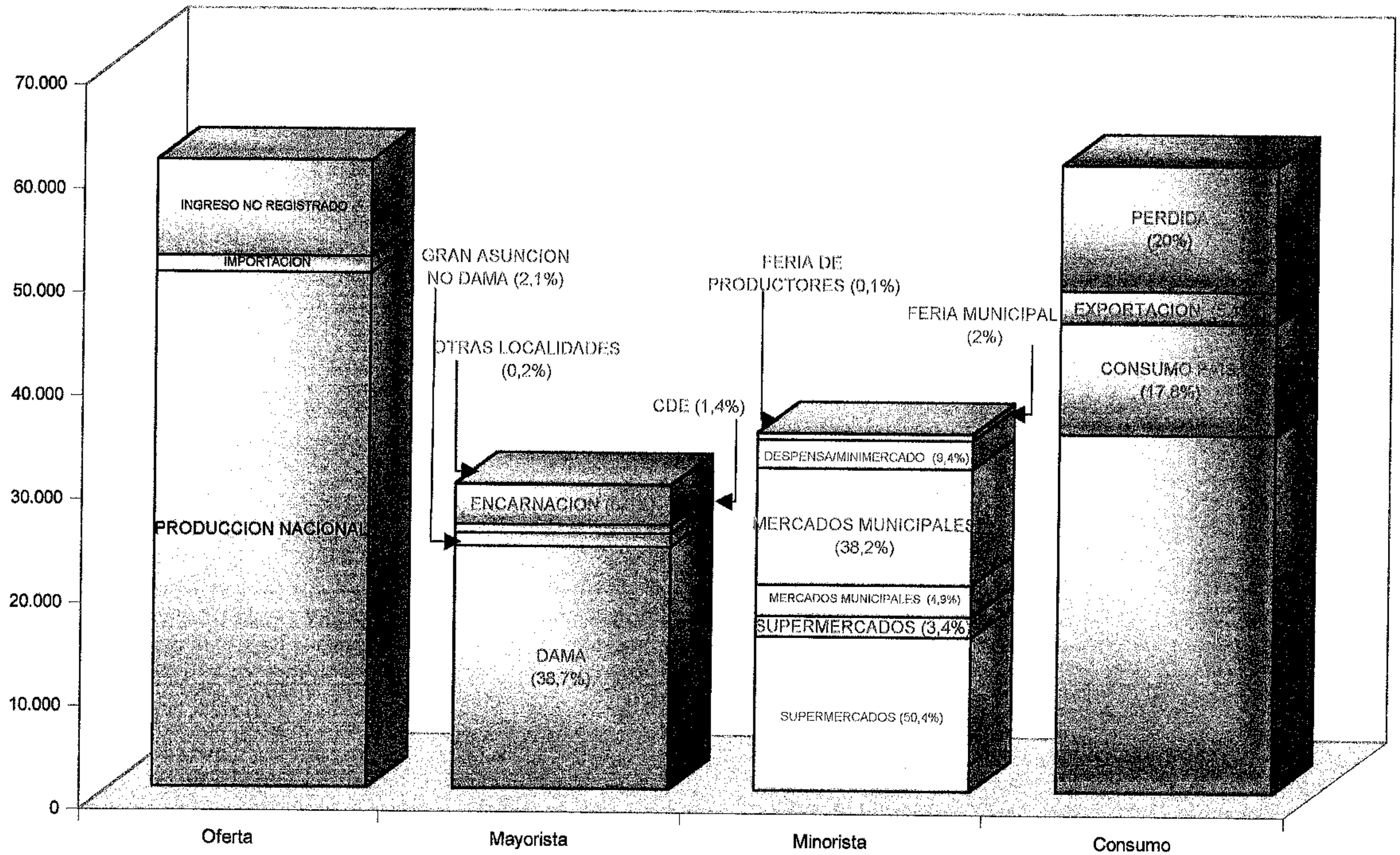
Table 109-C: (Continuation)

Otros minoristas		Del volumen total comercializado por mayoristas se resta las ventas a supermercados: 29.511 - 14.870 = 14.641 tn	Entrevistas a vendedores de Mercados Municipales
		Este volumen se distribuye proporcionalmente en base a preferencia por lugar de compra según la encuesta a consumidores: Mercado Municipal (77 %); Despensa/Minimercado (19%) y Feria Municipal (4%).	Encuesta a consumidores
▪ Mercado Municipal (C) través de mayoristas	11.274	(C) 14.641 x 77% = 11.274 tn	
(D) Directo de oferta	3.000	(D) Volumen estimado según entrevistas a vendedores de los Mercados Municipales.	
▪ Despensa / Minimercado	2.782	14.641 x 19% = 2.782 tn	Encuesta a consumidores
▪ Feria Municipal	585	14.641 x 4 % = 585 tn	Encuesta a consumidores
▪ Feria de Productores	55	Sumatoria de volumen comercializado por las Ferias de Productores, determinado en base datos proveídos por feriantes e informantes calificados	
Total minoristas	**34.607**		

Table 109-D: Methodology to estimate banana consumption volume. Year 2002

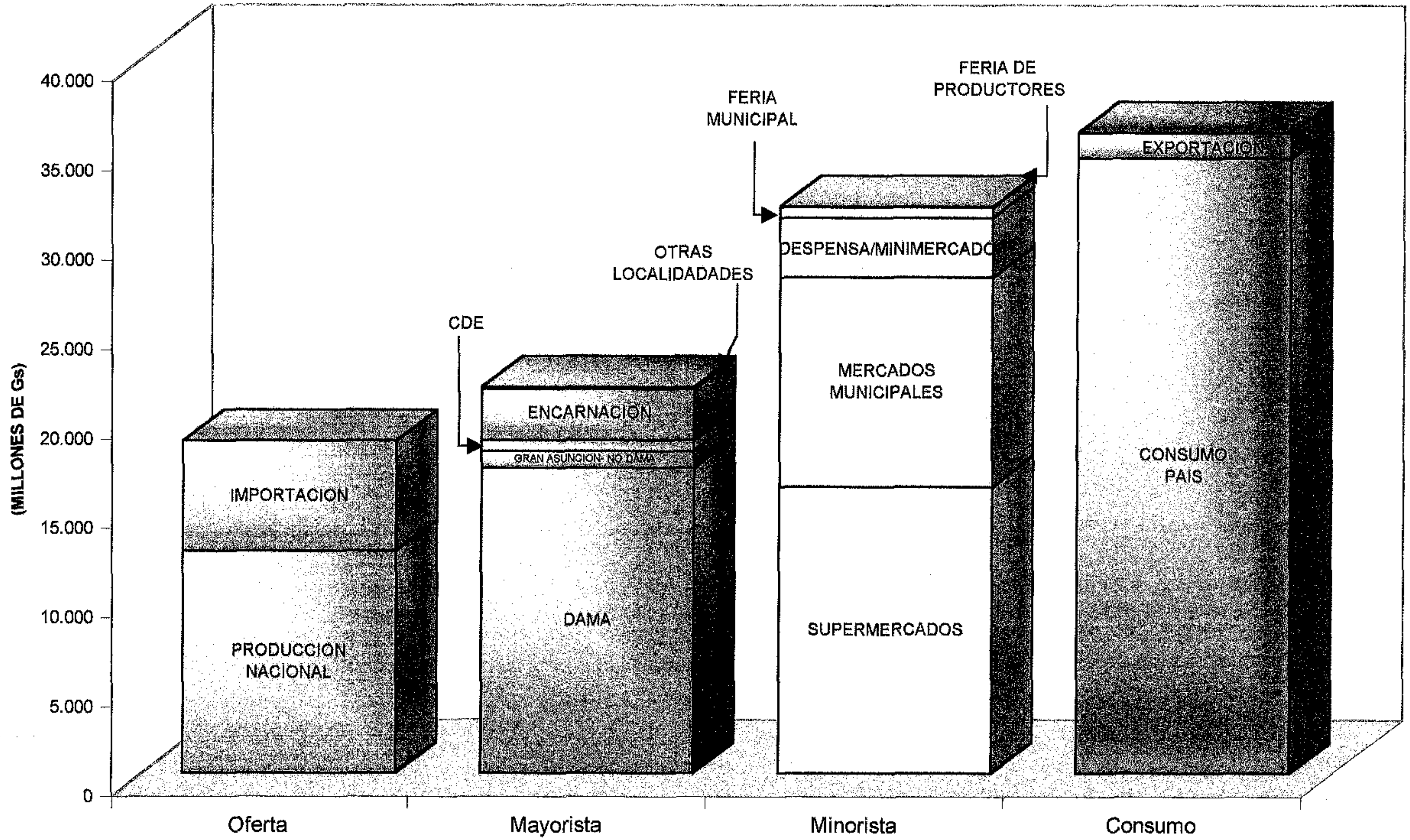
Consumidores	*Volumen (tn)*	*Metodología de estimación*	*Fuente*
Consumo país	45.389	1. Se determina el volumen total comercializado por los minoristas: 34.607 tn 2. Se estima un nivel de consumo resultante de la diferencia entre la oferta total y el volumen de la sumatoria de lo comercializado por minoristas, las exportaciones y las pérdidas en la comercialización: Consumo: 60.623 – (34.607 + 3.109 + 12.125) = 10.782 tn 3.Volumen total de Consumo país (1 + 2) = 45.389 tn	
Exportación	3.109	Es el volumen de exportación registrado por el Banco Central del Paraguay: 3.109 tn **Observación:** El estudio no detectó exportación no registrada.	▪ BCP
Pérdida	12.125	Se estima una pérdida del 20% de la oferta total por manipuleo en el proceso de comercialización: (60.623 x 20%) = 12.125 tn	
Total	**60.623**		

Figure 31: Flow chart of banana commercialization in Paraguay (Volume in tons). Year 2002



Ref. Las letras y porcentajes dentro del gráfico tienen el mismo color de las columnas de valores de donde proviene cada segmento.

Figure 32: Flow chart of banana commercialization in Paraguay (in millions of Guaraníes). Year 2002



The banana supply in the Paraguay is represented by the available national production and for banana of foreign origin. The available annual national production reaches on the average around 50.000 tons, *Table E-3, Annex E.*

The other sector that contributes to the supply constitutes product of foreign origin that entered a total of 10.830 tons, this sector constitute the imports and banana entrances not registered, *Table110.*

Table 110. Estimate of banana supply by origin in Paraguay. Year 2002

Origin	*Volume (Tons)*	*Percentage (%)*
National Production Available	49.793	82,14
Imports	1.567	2,58
Not Registered entrances	9.263	15,28
Total	***60.623***	***100,00***

Source: Elaborated on data of DGA, CEASA (Brazil) DDV/MAG.

Data registered by the Dirección General de Aduanas indicate that in the year 2002 entered to the country a total volume of 1.600 tons, entered exclusively from Brazil. It is important to highlight the high entrance volume not registered officially, *Table E-4 and A-5, Annex E.*

The banana distribution differs according to its origin. For instance, the national production is distributed by producers to wholesalers located in or outside DAMA, to wholesalers located at the municipal markets of interior towns, to consumers in municipal markets, or sold directly by producers on farm, and, a small volume is exported (3.109 tons) to Uruguay and Argentina, *Figure 31.*

In DAMA the supply of national banana is marketed mainly through organizations like NIKKEI, CEPACOOP, CECOPROA and FUNDECA, *Table 111.*

Table 111. Volume of national banana marketed in DAMA, by Association, Year 2002

Association	*Volume (Toneladas)*
NIKKEI	11,64
CECOPROA	2.041,62
CEPACOOP	985,24
FUNDECA	10,50
Total	***4.088,5***

Source: Elaborated based on interviews to managers of the associations.

On the other hand, the foreign banana that enters to the country is channeled in its biggest proportion through wholesalers and, in some cases, by retailers (supermarkets). Supermarkets acquire the product in origin, specifically from CEASA and other markets of Foz of Yguazú (Brazil).

Table 112 shows the channeled banana volume for wholesalers according to the location area. It is of highlighting the gathering of the banana supply through wholesalers located in DAMA.

Table 112. Volume of banana channeled by wholesalers, according to location area. Year 2002

Location Zone	*Volume (Tons)*	*Percentage (%)*
DAMA	23.445	79,44
GRAN ASUNCIÓN (EXCLUDED DAMA)	1.274	4,32
OTHER CITIES OF THE COUNTRY		
Ciudad del Este	842	
Encarnación	3.840	
Coronel Oviedo	110	
Sub total OTHER CITIES OF THE COUNTRY	4.792	16,24
TOTAL	*29.511*	*100,00*

Source: Elaborated based on interviews to wholesalers located in DAMA, Gran Asunción, Ciudad del Este, Encarnación and Coronel Oviedo.

The total supply of banana is distributed mainly through wholesalers to supermarkets and other retailers, *Figure 31*. Currently, it is of highlighting the importance of supermarkets since they capture 50% of all the volume marketed by wholesalers. The remaining volume is sold to other retailers located in DAMA, municipal fairs, despensas and mainly in the municipal markets, *Table 113*.

Table 113. Volume banana distribution from wholesalers to retailers. Year 2002

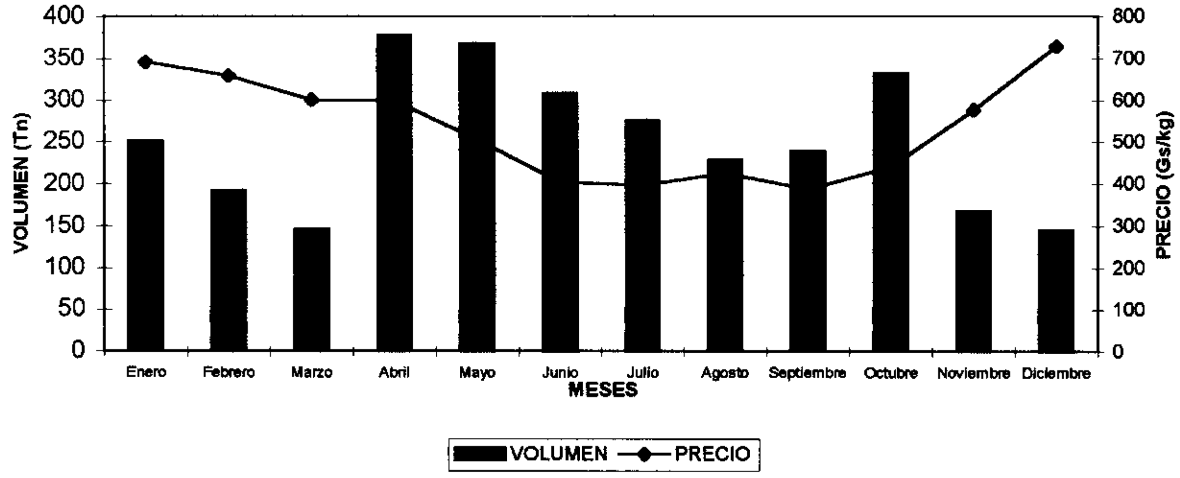
Retailers	*Volume (Tons)*	*Percentage (%)*
SUPERMARKETS	14.870	50,39
OTHER RETAILERS		
Municipal Markets	11.274	
Despensas/Minimercados	2.782	
Municipal Fairs	585	
Sub Total OTHER RETAILERS	14.641	49,61
Total	**29.511**	**100,00**

Source: Elaborated based on interviews to supplying wholesalers of supermarkets, feriantes other retailers.

2.11.2. Prices and seasonality

The analysis of banana monthly prices, according to 2002 data from CECOPROA and CEPACOOP, allows to identify price fluctuations related to supply seasonality. This way, form January to March and November to December, the smallest volumes of monthly commercialization are verified, reaching during these months the highest prices in the year, *Figure 33*.

Figure 33: Volume and monthly price of banana. 2002



It is necessary to mention that the prevalent climate in the country is extremely favorable for the banana production during the whole year, however, supply picks are observed in the months of April, May and October. The volume marketed during the months of April to June reaches 44% of the annual total, coincident with the depression of the levels of prices, *Table E-6 Annex E.*

2.11.3. Value of commercialization according to origin and channel

2.11.3.1. Value of commercialization by origin

The total commercialization value of national and foreign entered banana was estimated in 18.621 millions of Guaraníes, *Figure 32 and Table 114.* The biggest value in the commercialization comes from the national product that has a bigger volume than the foreign product, but not a higher price, like is observed next:

Table 114. Estimate of banana commercialization value by origin. Year 2002

Origen	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*	*Percentage (%)*
National	49.793	250	12.448	66,85
Foreign	10.830	570	6.173	33,15
Total	*60.623*		*18.621*	*100,00*

Source: Estimate based on data of the Dirección General de Aduanas, CEASA (Brazil) and DDV/MAG.

The following Table shows the sources of banana price estimation:

Table 115: Prices established for banana commercialization. March 2003

Origin	*Price (Gs/Kg)*	*Observations*
National	250	It corresponds to on farm price, according to producer interviews
Foreign	570	It corresponds to purchase price based on data provided by wholesalers importers .
WHOLESALERS		
DAMA	730	Estimate based on interviews with wholesalers of DAMA.
Gran Asunción	730	Estimate based on interviews with wholesalers located outside DAMA.
Ciudad del Este	720	Estimate based on interviews with wholesalers of Ciudad del Este Municipal Markets.
Encarnación	750	Estimate based on interviews with wholesalers of Encarnación Municipal Market.
Coronel Oviedo	1.000	Sale price provided by technicians and wholesalers of the area.
RETAILERS		
Supermarkets	950	Estimate based on sale prices average of Great Asunción and Encarnacion's main supermarkets.
Municipal Markets	820	Estimate on sale prices average of San Lorenzo and Encarnación. Municipal Markets
Despensas/Minimercados	1.200	Estimate based on sale prices average in Despensas and Minimercados of San Lorenzo and Encarnación.
Municipal Fairs	1.000	Estimate based on sale prices average in Asunción and Encarnación Municipal Fairs.
Farmers Fairs	750	Estimate based on sale prices average in Farmers Fairs of Ciudad del Este and Encarnación.

2.11.3.2. Value of commercialization according to wholesalers

In relation to wholesalers' sales by location area, DAMA continues being the main place where banana trade is carried out considering that 79% of the marketed total value is carried out through wholesalers located in DAMA. It is of highlighting that the markets wholesalers located in other towns like Ciudad del Este, Gran Asunción and Coronel Oviedo market for a total value that doesn't reach 17%, *Table 116.*

Table 116. Estimate of banana sales by wholesalers, according to location area. Year 2002.

Zone	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millones de Gs)*	*Percentage (%)*
DAMA	23.445	730	17.115	79,09
GRAN ASUNCIÓN	1.274	730	930	4,30
OTHER CITIES OF THE COUNTRY				
Ciudad del Este	842	720	606	2,80
Encarnación	3.840	750	2.880	13,31
Coronel Oviedo	110	1.000	110	0,50
SubTotal OTHER CITIES THE COUNTRY	4.792		3.596	16,61
Total	*29.511*		*21.641*	*100,00*

Source: Based on interviews with wholesalers of the different study areas.

2.11.3.3. Value of commercialization according to retailers

Sales carried out by retailers to consumers reached a total estimated in 31.734 millions of Guaraníes, 50,62% corresponds to banana sales carried out in the supermarkets, valued in approximately 16.065 millions of Guaraníes.

The estimates made by the study also indicate that sales carried out by other retailers are not very much. It stands out that banana marketed through the municipal markets reached an approximate value of 11.705 millions of Guaraníes, representing approximately 75% of the value marketed by this channel, *Table117.*

Table 117. Estimate of banana sales by retailers. Year 2002

Retailers	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*	*Percentage (%)*
SUPERMARKETS	16.911	950	16.065	50,62
OTHER RETAILERS				
Municipal Markets	14.274	820	11.705	36,88
Despensas/Minimercados	2.782	1.200	3.338	10,53
Municipal Fairs	585	1.000	585	1,84
Fairs of Producers	55	750	41	0,13
Sub Total OTHER RETAILERS	17.696		15.669	49,38
Total	**34.607**		**31.734**	**100,00**

Source: *Based on prices collected in the purchase places.*

2.11.3.4. Value of commercialization according to final consumption destination

The value of consumers' purchases through all the commercialization channels reached approximately 34.431 millions of Guaraníes, coming from sales to consumers (31.735 millions of Guaraníes) and from the sale of 10.782 tons valorized at the producer price (250 Gs/Kg).

Finally, the exports were valued using annual price average and total annual volume provided by the BCP, *Table 118.*

Table 118. Estimated banana commercialization value according to final consumption destination. Year 2002

Retailers	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millones de Gs)*
Country Consumption (through retailers	34.607	917,01*	31.735
Country Consumption (on farm)	10.782	250,00	2.696
Exports	3.109	460,00	1.430

* *Correspond to average prices weighted by retailers sales volume (see table 117).*

2.11.4. Margins of commercialization of a representative channel

The commercialization margins according to the origin of the supply indicate that the difference among the price paid by the consumer and the price average received by producers on farm is 700 Gs/Kg, representing a total margin of commercialization of 74%, *Table 119.*

Table 119. Total margin of commercialization of banana. 2002

Concept	*Value (Gs/Kg)*	*Margin (Gs/Kg)(%)*
On farm price	250	
Wholesalers selling price	730	
Retailers selling price	950	700 (74%)

Source: Estimate based on data provided by wholesalers, retailers producers.

2.12. Watermelon

The watermelon (Citrullus vulgaris) is a fruit that traditionally are consumed in fresh during the summer. The per-cápita consumption in the metropolitan area is 12,6 daily grams, according to data of the DGEEC. In the country the main consumed varieties are Sugar Baby, Crimson Aweet and Charleston Gray.

The most important areas in watermelon production are located in the departments of Concepción, San Pedro, Caaguazú, and Itapúa.

The sow of watermelon seeds can be carried out in our country during the months of August to February. The offer of the national product begins in October and extends until February, concentrating most of the supply on the months of October to February, *Table E-2, Annex E.*

2.12.1. Channels of commercialization

The main agents involved in the commercialization of watermelon constitute the national producers, wholesalers, retailers and consumers. The commercialization flow charts presented in *Figure 34 and 35* illustrate the commercialization market at national level, according to the main involved agents. The study estimated that in the process of watermelon commercialization a global loss of 10% on the total supply exists (6.988 tons).

The methodology used for the construction of the commercialization flow charts in volume and value is presented:

Table 120-A: Methodology to estimate watermelon commercialization volumes – National supply. Year 2002

Oferta	*Volumen (Ton)*	**Metodología de estimación**	*Fuente*
Producción Nacional Disponible	65.000	1. No existen estadísticas oficiales del volumen de producción de este rubro, por tanto, se estimó la producción nacional en 76.295 Tn 2. Se estima una pérdida por cosecha de 14,8% (11.295 Tn) 3. Producción Nacional Disponible (1-2) = 65.000 Tn	
Importación Registrada	455	4. Datos sistematizados en base a registros de Aduanas (Sistema SOFIA) = 455 Tn	DGA
Importación No Registrada	4.422	**(A) Estimación de volumen ingresado al país, de origen brasilero, no registrado:** 5. Volumen comercializado en CEASA-PR (Foz de Yguazú), año 2002 (5.301Tn), se estima un 80% que ingresa al país = 4.241 Tn 6. Estimación de ingreso desde otros mercados de Foz de Iguazú. Se estima un 15 % del volumen ingresado desde CEASA (4.241 x 15%) = 636 Tn 7. Volumen Total estimado de ingreso desde Brasil (5 + 6) = 4.877 Tn	Registros de CEASA-PR (Central de Curitiba) y estimación dada por Directivos de CEASA-PR (Foz de Yguazú) y entrevistas con mayoristas de DAMA
		8. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen brasilero = 455 Tn 9. Volumen de ingreso de origen brasilero No Registrado = (7 - 8) = 4.422 Tn	DGA
		(B) Estimación de volumen ingresado al país, de origen argentino, no registrado: 10. Se consideran las proporciones de ingreso de sandía de origen extranjero en DAMA: Brasil (100 %) y Argentina (0 %) como iguales a las proporciones de ingreso al Paraguay desde Argentina y Brasil. 11. Estimación del volumen total ingresado al Paraguay, en base al cálculo de lo ingresado desde el Brasil (4.877 x 100/100) = 4.877 Tn 12. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen argentino (0 Tn).	
Total oferta	**69.877**		

Table 120-B: Methodology to estimate volume of watermelon marketed by wholesalers. Year 2002

Mayoristas	*Volumen (tn)*	*Metodología de estimación*	*Fuente*
DAMA	13.793	1. Los mayoristas identificados fueron clasificados en grupos, según el volumen promedio anual que comercializan. Grupo / Numero / Prom/año / Total I / (2) / 455,00 / 910 III / (60) / 214,72 / 12.883 2. Volumen Total comercializado en DAMA (GI +GIII) = 13.793 tn	Entrevistas a Mayoristas de DAMA Observación directa en DAMA
Fuera de DAMA (Gran Asunción)	770	3. Promedio de venta anual x 3 mayoristas individualizados 256,7 x 3 = 770 tn **Observación**: Los mayoristas de San Lorenzo no comercializan este rubro.	Entrevistas a mayoristas ubicados fuera de DAMA
Ciudad del Este	725	4. Promedio de venta anual x 3 mayoristas: 241,7 x 3 = 725 tn	Entrevistas a mayoristas de Ciudad del Este
Encarnación	5.460	5. Promedio de venta anual x 10 mayoristas: 546 x 10 = 5.460 tn	Entrevistas a mayoristas de Encarnación
Coronel Oviedo	32	6. Promedio de venta anual x 3 mayoristas: 10,7 x 3 = 32 tn	Entrevistas a mayoristas de Coronel Oviedo
Total mayoristas	**20.780**		

Table 120-C: Methodology to estimate volume of watermelon marketed by retailers. Year 2002

Minoristas	*Volumen (Ton)*	*Metodología de estimación*	*Fuente*
Supermercado (A) Directo de oferta	1.743	(A) 1. Se estimó un 5% sobre el volumen total de ingreso extranjero (4.877 x 5%) = 243 Tn 2. Se estima un volumen de compra directa de productores: 1.500 Tn 3. Total de compra directa (1+2) = 1.743 Tn	Entrevistas a Gerentes de Supermercados
(B) A través de mayoristas	8.849	(B) 1. Mayoristas DAMA: Se estimó un porcentaje promedio de venta a supermercados por mayoristas para los grupos I y III, en base al volumen total comercializado en DAMA. Para el Grupo I se determinó según lo manifestado por cada mayorista:	Entrevistas con Mayoristas

	Volumen venta a Super	Porcentaje Promedio (%)	Total (Tn)
GI Mayorista 1	450	80	360
Mayorista 2	460	30	138
GIII	12.883	30	3.865
Total	13.793		4.363

Metodología de estimación	Fuente
2. Mayoristas No-DAMA: Se estimó en base al porcentaje promedio de venta a supermercados por mayoristas del Gran Asunción ubicados fuera de DAMA 770 x 92,08% = 709 Tn	
3. Estimación del porcentaje promedio de venta a supermercados por mayoristas de Otras Localidades.	
Ciudad del Este = 0 tn Encarnación: 5.460 x 69% = 3.767 Tn	Entrevista a Gerentes de supermercados
Cnel.Oviedo: 32 x 30% = 10 Tn	Entrevista a técnico del MAG

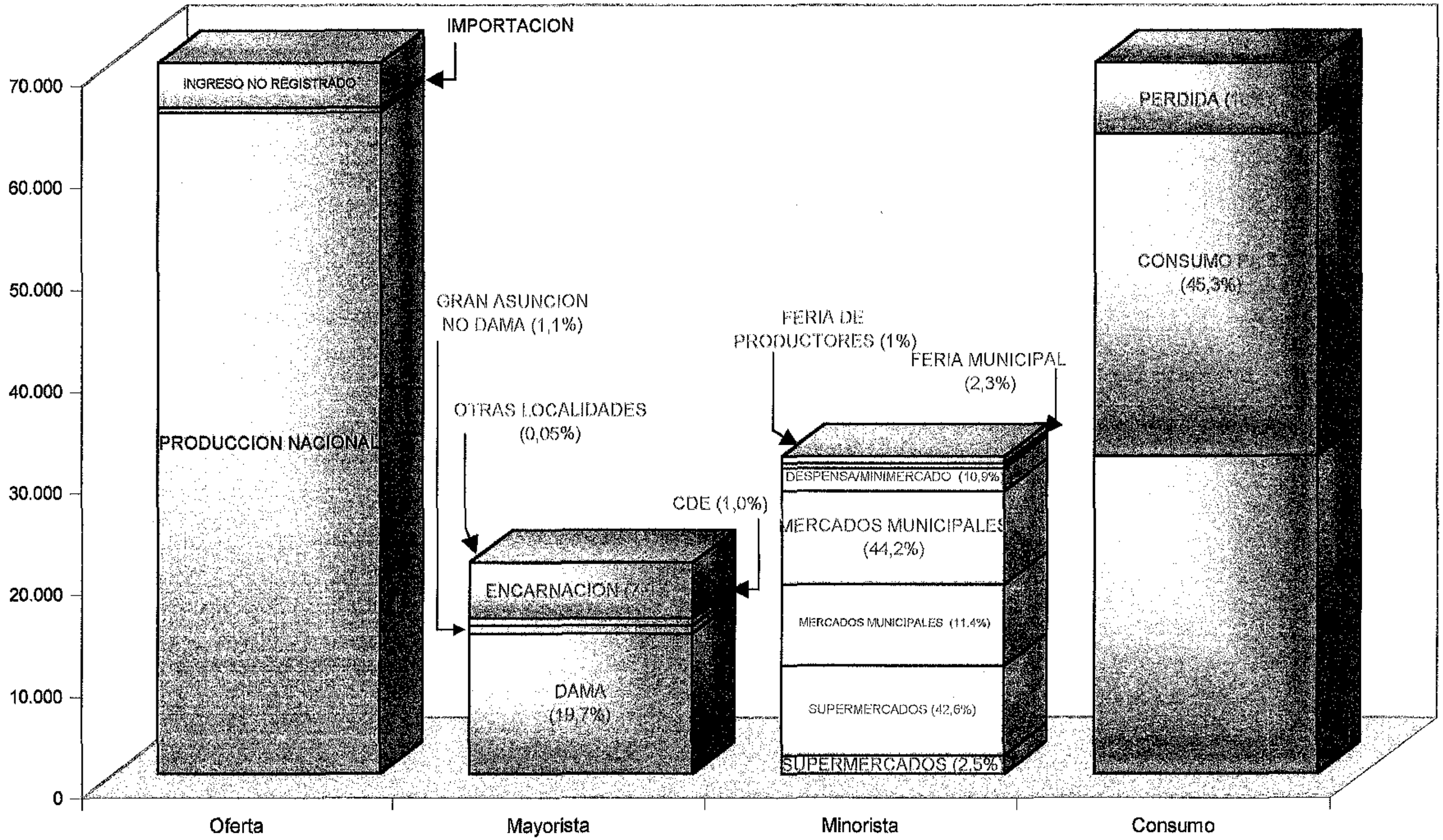
Table 120-C: (Continuation)

Otros minoristas		Del volumen total comercializado por mayoristas se resta las ventas a supermercados: 20.780 – 8.849 = 11.931 Tn	Entrevistas a vendedores de Mercados Municipales
		Este volumen se distribuye proporcionalmente en base a preferencia por lugar de compra según la encuesta a consumidores: Mercado Municipal (77 %); Despensa/Minimercado (19%) y Feria Municipal (4%).	Encuesta a consumidores
▪ Mercado Municipal			
(C) A través de mayoristas	9.187	(C) 11.931 x 77% = 9.187 Tn	
(D) Directo de oferta	8.000	(D) Volumen estimado según entrevistas a vendedores de los Mercados Municipales.	
▪ Despensa / Minimercado	2.267	11.931 x 19% = 2267 Tn	Encuesta a consumidores
▪ Feria Municipal	477	11.931 x 4% = 477 Tn	Encuesta a consumidores
▪ Feria de Productores	700	Sumatoria de volumen comercializado por las Ferias de Productores.	Datos proveídos pc feriantes e informantes calificados
Total minoristas	**31.223**		

Table 120-D: Methodology to estimate watermelon consumption volume. Year 2002

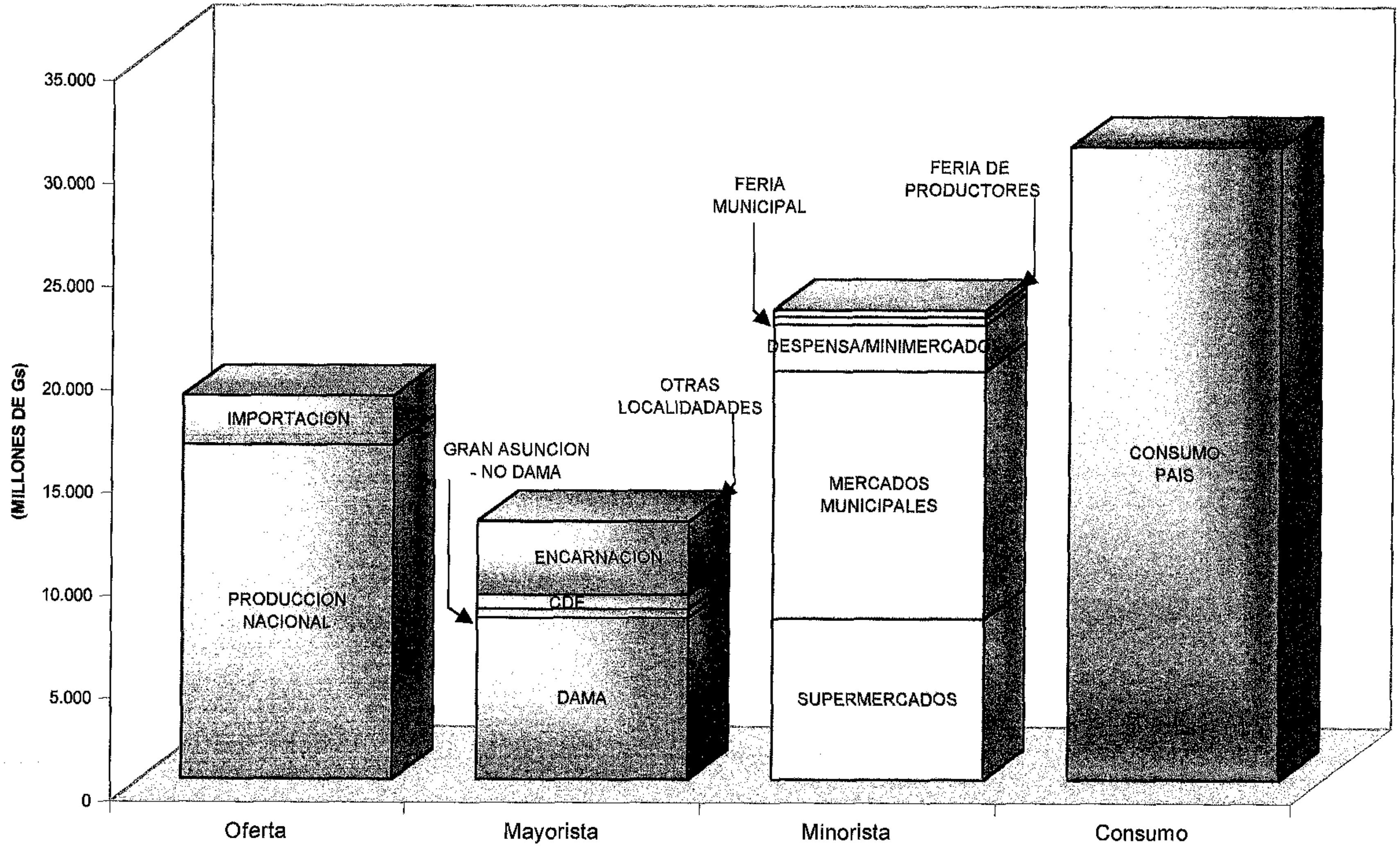
Consumidores	*Volumen (Ton)*	*Metodología de estimación*	*Fuente*
Consumo país	62.889	1. Se determina el volumen total comercializado por los minoristas: 31.223 Tn 2. Se estima un nivel de consumo resultante de la diferencia entre la oferta total y el volumen de la sumatoria de lo comercializado por minoristas, las exportaciones y las pérdidas en la comercialización: Consumo: 69.877 – (31.223 + 0 + 6.988) = 31.666 Tn 3. Volumen total de Consumo país (1 + 2) = 62.889 Tn	
Exportación	0	El Banco Central del Paraguay no registra exportación: 0 Tn	BCP
Pérdida	6.988	Se estima una pérdida del 10% de la oferta total por manipuleo en el proceso de comercialización: (69.877 x 10%) = 6.988 Tn	
Total	**69.877**		

Figure 34: Flow chart of watermelon commercialization in Paraguay (Volume in tons). Year 2002



Ref. Las letras y porcentajes dentro del gráfico tienen el mismo color de las columnas de valores de donde proviene cada segmento.

Figure 35: Flow chart of watermelon commercialization in Paraguay (in millions of Guaraníes). Year 2002



The watermelon supply in Paraguay is represented by the available national production and for watermelon of foreign origin that enters to the country. The available annual national production reaches on average around 65.000 tons, *Table E-3, Annex E.*

The other sector that contributes to watermelon supply constitutes the product of foreign origin that entered a total of 4.877 tons, this sector constitute the imports and watermelon entrances not registered, *Table 121.*

Table 121. Estimate of watermelon supply by origin in Paraguay. Year 2002

Origin	*Volume (Tons)*	*Percentage (%)*
National Production Available	65.000	93,02
Imports	455	0,65
Not Registered entrances	4.422	6,33
Total	***69.877***	***100,00***

Source: Elaborated on data of DGA, CEASA (Brazil) DDV/MAG.

The Dirección General de Aduanas registered for the year 2002, 455 tons of watermelon entered from Brazil, *Table E-4, Annex E.*

It is important to highlight that of the total volume of watermelon of foreign origin that is marketed in the country, approximately 90% corresponds to entrance volumes not registered officially, *Table E-5, Annex E.*

The watermelon distribution differs according to its origin. For instance, the national production is distributed by producers to wholesalers located in or outside DAMA, to wholesalers at the municipal markets of interior towns and to consumers in the municipal markets, or is sold directly by producers on farm, *Figure 34.*

On the other hand, the foreign watermelon that enters to the country is distributed mainly by wholesalers and, in some cases, by retailers (supermarkets). Supermarkets acquire the product in origin, specifically from CEASA and other markets of Foz of Yguazú (Brazil).

It is of highlighting that the supply of national watermelon in DAMA is marketed by producers associated to organizations like NIKKEI, CEPACOOP and FUNDECA, *Table 122.*

Table 122. Volume of national watermelon marketed in DAMA, by Association, Year 2002

Association	*Volume (Tons)*
NIKKEI	0,70
CEPACOOP	0,35
FUNDECA	70,00
Total	***71,05***

Source: Elaborated based on interviews to managers of the associations.

Table 123 shows the volume of watermelon acquired by wholesalers, according to location area. The accumulation of watermelon offered by wholesalers located in DAMA stands out.

Table 123. Volume of watermelon channeled by wholesalers, according to location area. Year 2002

Location Zone	*Volume (Tons)*	*Percentage (%)*
DAMA	13.793	66,38
GRAN ASUNCIÓN (EXCLUDED DAMA)	770	3,71
OTHER CITIES OF THE COUNTRY		
Ciudad del Este	725	
Encarnación	5.460	
Coronel Oviedo	32	
Sub total OTHER CITIES OF THE COUNTRY	6.217	29,92
Total	***20.780***	***100,00***

Source: Elaborated based on interviews to wholesalers located in DAMA, Gran Asunción, Ciudad del Este, Encarnación and Coronel Oviedo.

The total offer of watermelon is channeled in 30% by wholesalers. Wholesalers distribute watermelon to supermarkets and other retailers, *Figure 34*. Currently, the importance acquired by the supermarkets distribution of this item, stands out that since in the 2002, they captured 43% of all the volume marketed by wholesalers. The 57 % remaining wholesalers sell to DAMA's retailers, municipal fairs, despensas and mainly in the municipal markets, *Table 124*.

Table 124. Volume of watermelon distribution from wholesalers to retailers. Year 2002

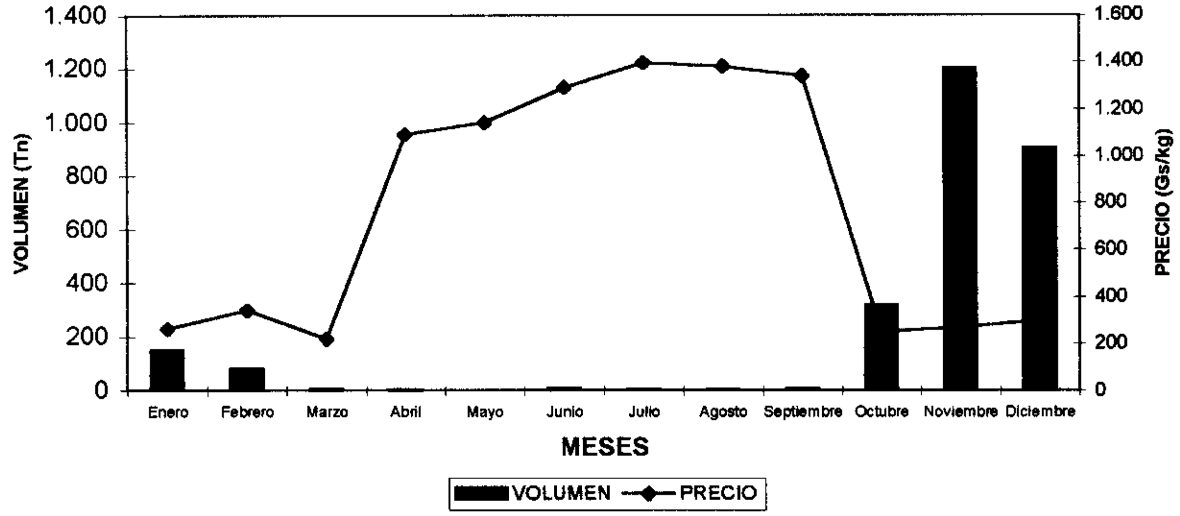
Retailers	*Volume (Tons)*	*Percentage (%)*
SUPERMARKETS	8.849	42,58
OTHER RETAILERS		
Municipal Markets	9.187	
Despensas/Minimercados	2.267	
Municipal Fairs	477	
Sub Total OTHER RETAILERS	11.931	57,42
Total	***20.780***	***100,00***

Source: Elaborated based on interviews to supplying wholesalers of supermarkets, feriantes other retailers.

2.12.2. Prices and seasonality

The analysis of watermelon monthly prices, according to data of the year 2002 of DAMA, allows to identify price fluctuations that reflect correlation with the seasonality of the supply. This way, of January to September low marketed monthly volumes are observed, being reached the highest prices in the year during the months of April to September, *Figure 36.*

Figure 36: Volume and monthly price of watermelon. 2002



The volume marketed during the months of October to December reached 91% of the total annual marketed, coincident with the depression in the price levels, *Table E-6, Annex E.*

2.12.3. Value of commercialization according to origin and channel

2.12.3.1. Value of commercialization by origin

The total commercialization value of national and foreign entered watermelon was estimated in 18.640 millions of Guaraníes, *Figure 35 and Table 125.* The biggest value in the commercialization comes from the marketing of national watermelon that has a very superior volume in comparison to the foreign product. However national watermelon prices are lower than foreign watermelon.

Table 125. Estimate of watermelon commercialization value by origin. Year 2002

Origin	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millones de Gs)*	*Percentage (%)*
National	65.000	250	16.250	87,18
Foreign	4.877	490	2.390	12,82
Total	***69.877***		***18.640***	***100,00***

Source: Estimate based on data of the Direccion General de Aduanas, CEASA (Brazil) and of the DDV/MAG.

The following Table shows the sources of watermelon price estimation:

Table 126: Prices established for the watermelon commercialization. March 2003

Origin	*Price (Gs/Kg)*	*Observations*
National	250	It corresponds to on farm price, according to producer interviews
Foreign	490	It corresponds to purchase price based on data provided by wholesalers importers .
WHOLESALERS		
DAMA	570	Estimate based on interviews with wholesalers of DAMA.
Gran Asunción	570	Estimate based on interviews with wholesalers located outside DAMA.
Ciudad del Este	950	Estimate based on interviews with wholesalers of Ciudad del Este Municipal Markets.
Encarnación	650	Estimate based on interviews with wholesalers of Encarnación Municipal Market.
Coronel Oviedo	650	Sale price provided by technicians and wholesalers of the area.
RETAILERS		
Supermarkets	740	Estimate based on sale prices average of Great Asunción and Encarnacion's main supermarkets.
Municipal Markets	700	Estimate on sale prices average of San Lorenzo and Encarnación. Municipal Markets
Despensas/Minimercados	1.000	Estimate based on sale prices average in Despensas and Minimercados of San Lorenzo and Encarnación.
Municipales Fairs	780	Estimate based on sale prices average in Asunción and Encarnación Municipal Fairs.
Farmers Fairs	500	Estimate based on sale prices average in Farmers Fairs of Ciudad del Este and Encarnación.

2.12.3.2. Value of commercialization according to wholesalers

In relation to wholesalers' sale by location area, DAMA continues being the main place where watermelon trade is carried out considering that 62,60% of the total marketed value is carried out through wholesalers located in DAMA. It is of highlighting that the markets wholesalers located in other towns like Ciudad del Este, Gran Asunción and Coronel Oviedo trade for a total value of 34%,*Table 127.*

Table 127. Estimate of watermelon sales by wholesalers according to location area. Year 2002.

Location zone	*Volume (Tons)*	*Price (Gs/Kg)*	*Valor (Millions of Gs)*	*Percentage (%)*
DAMA	13.793	570	7.862	62,60
GRAN ASUNCION	770	570	439	3,49
OTHER CITIES OF THE COUNTRY				
Ciudad del Este	725	950	689	5,48
Encarnación	5.460	650	3.549	28,26
Coronel Oviedo	32	650	21	0,17
Sub Total OTHER CITIES OF THE COUNTRY	6.217		4.259	33,91
Total	*20.780*		*12.559*	*100,00*

Source: Based on interviews with wholesalers of the different study areas.

2.12.3.3. Value of commercialization according to retailers

Sales carried out by retailers to consumers reached a total estimated in 22.858 millions of Guaranies, 34,29% corresponds to watermelon sales carried out in supermarkets, valued in approximately 7.838 millions of Guaraníes.

The estimates made by the study also indicates you that sales carried out by other retailers that marketed through the municipal markets reached an approximate valued of 12.031 millions of Guaraníes, representing around 80% of the value marketed by this channel, *Table 128.*

Table 128. Estimate of watermelon sales by retailers. Year 2002

Retailers	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millones de Gs)*	*Percentage (%)*
SUPERMARKETS	10.592	740	7.838	34,29
OTHER RETAILERS				
Municipal Markets	17.187	700	12.031	52,63
Despensas/Minimerc.	2.267	1.000	2.267	9,92
Municipal Fairs	477	780	372	1,63
Fairs of Producers	700	500	350	1,53
Sub Total OTHER RETAILERS	20.631		15.020	65,71
Total	*31.223*		*22.858*	*100,00*

Source: Correspond to price of March of 2003, based on prices collected in the purchase places.

2.12.3.4. Value of commercialization according to final consumption destination

The valued of consumers' purchases through all the commercialization channels reached approximately 30.774 millions Guaraníes, coming from sales to consumers (22.858 millions Guaraníes) and from sales of 31.665 tons valorized at the producer price (250 Gs/Kg), *Table 129.*

Table 129. Estimated watermelon commercialization value according to final consumption destination. Year 2002

Retailers	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millones de Gs)*
Country Consumption (through retailers)	31.223	732,09*	22.858
Country Consumption (on farm)	31.665	250,00	7.916

* *Correspond to average prices weighted by retailers sales volume (see table 128).*

2.12.4. Margins of commercialization of a representative channel

The commercialization margins according to the origin of the supply indicate that the difference among the price paid by the consumer and the price average received by the producer on farm is 490 Gs/Kg representing a total margin of commercialization of 66%, *Table 130.*

Table 130. Total margin of commercialization of watermelon. 2002

Concept	*Value (Gs/Kg)*	*Margin (Gs/Kg)(%)*
On farm price	250	
Wholesalers selling price	570	
Retailers selling price	740	490 (66%)

Source: Estimate based on data provided by wholesalers, retailers producers.

2.13. Melon

The melon (Cucumis melo) is a vegetable that is consumed in fresh in the country. Data of the DGEEC indicate that the consumption per-cápita in the metropolitan area is 126 daily grams. The main marketed varieties are Rocío of Miel, Hales Jumbo, Sunrise and Criolla.

The melon seeds can technically be sowed in our country during the whole year, however, it is carried out mainly in the months of July to February by a traditional cultivation system. The supply of the national product begins in October and extends until April, however, most concentrates on the months of October, November and December, *Table E-2, Annex E.*

2.13.1. Channels of commercialization

The main agents involved in the commercialization of the melon constitute the national producers, wholesalers, retailers and consumers. The commercialization flow charts presented in the *Figure 37 and 38* illustrate the commercialization market at national level, according to the main involved agents. The study estimated that in the process of commercialization of this produce a global loss of 20% (4.045 tons) on the total supply exists.

Next, the methodology used for the construction of the commercialization flow charts in volume and value is presented:

Table 131-A: Methodology to estimate melon commercialization volumesf– National supply. Year 2002

Oferta	*Volumen (Ton)*	*Metodología de estimación*	*Fuente*
Producción Nacional Disponible	19.500	1. Promedio de los últimos años (1996-2001), de la producción nacional (22.941 Tn) 2. Se estima una pérdida por cosecha de 15%. (3.441 Tn) ión Nacional Disponible (1-2)= 19.500 Tn	
Importación Registrada	216	stematizados en base a registros de Aduanas (Sistema SOFIA)= 216 Tn	
Importación No Registrada	511	**(A) Estimación de volumen ingresado al país, de origen brasilero, no registrado:** 5. Volumen comercializado en CEASA-PR (Foz de Yguazú), año 2002 (517 Tn), se estima un 80% que ingresa al país = 414 Tn 6. Estimación de ingreso desde otros mercados de Foz de Iguazú. Se estima un 15 % del volumen ingresado desde CEASA (414 x 15%) = 62 Tn 7. Volumen Total estimado de ingreso desde Brasil (5 + 6) = 476 Tn 8. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen brasilero = 216 Tn 9. Volumen de ingreso de origen brasilero No Registrado: (7 - 8) = 260 Tn **(B) Estimación de volumen ingresado al país, de origen argentino, no registrado:** 10. Se consideran las proporciones de ingreso de melón de origen extranjero en DAMA, Brasil (65,5%) y Argentina (34,5%) como iguales a las proporciones de ingreso al Paraguay desde Argentina y Brasil. 11. Estimación del volumen total ingresado al Paraguay, en base al cálculo de lo ingresado desde el Brasil (476 x 100/65,5) = 727 Tn 12. Ingreso registrado del producto al país (Base de datos de Sistema SOFÍA), de origen argentino (0 Tn). 13. Volumen total estimado de ingreso desde Argentina (11- 7) = 251 Tn 14. Volumen no registrado desde la Argentina (13-12) = 251 Tn 15. Volumen Total de Ingreso No Registrado (9 + 14) = 511 Tn	de CEASA-PR (Central de Curitiba) y estimación dada por Directivos de CEASA-PR (Foz de Yguazú) y entrevistas a mayoristas de DAMA
Total oferta	**20.227**		

Table 131-B: Methodology to estimate volume of melon marketed by wholesalers. Year 2002

Mayoristas	*Volumen (Ton)*	*Metodología de estimación*	**Fuente**
DAMA	7.746	1. Los mayoristas identificados fueron clasificados en grupos, según el volumen promedio anual que comercializan. Grupo / Numero / Prom/año / Total I (2) 202,50 405 III (50) 146,82 7.341 2. Volumen Total comercializado en DAMA (GI +GIII) = 7.746 Tn	Entrevistas a Mayoristas de DAMA Observación directa en DAMA
Fuera de DAMA (Gran Asunción)	346	3. Promedio de venta anual x tres mayoristas individualizados 115.33 x 3 = 346 Tn **Observación**: Los mayoristas de San Lorenzo no comercializan este rubro.	Entrevistas a mayoristas ubicados fuera de DAMA
Ciudad del Este	54	4. Promedio de venta anual x 3 mayoristas: 18 x 3 =54 Tn	Entrevistas a mayoristas de Ciudad del Este
Encarnación	2.016	5. Promedio de venta anual x 10 mayoristas: 201,6 x 10 = 2016 Tn	Entrevistas a mayoristas de Encarnación
Coronel Oviedo	30	6. Promedio de venta anual x 3 mayoristas: 10 x 3 = 30 Tn	Entrevistas a mayoristas de Coronel Oviedo
Total mayoristas	**10.192**		

Table 131-C: Methodology to estimate volume of melon marketed by retailers. Year 2002

<table>
<tr><th>Minoristas</th><th>Volumen (tn)</th><th>Metodología de estimación</th><th>Fuente</th></tr>
<tr><td>Supermercado
(A) Directo de oferta</td><td>536</td><td>(A) 1. Se estimó un 5% sobre el volumen total de ingreso extranjero (727 x 0,05) = 36 tn
2. Se estima un volumen de compra directa de productores: 500 tn
3. Total de compra directa (1+2) = 536 tn</td><td>Entrevistas a Gerentes de Supermercados</td></tr>
<tr><td>(B) A través de mayoristas</td><td>4.240</td><td>(B) 1. Mayoristas DAMA: Se estimó un porcentaje promedio de venta a supermercados por mayoristas del grupo III, en base al volumen total comercializado en DAMA. Para el Grupo I se determinó según lo manifestado por cada mayorista:
<table>
<tr><th></th><th>Volumen venta a Supermercado (tn)</th><th>Porcentaje Promedio (%)</th><th>Total (tn)</th></tr>
<tr><td>GI Mayorista 1</td><td>391</td><td>80</td><td>313</td></tr>
<tr><td>Mayorista 2</td><td>14</td><td>30</td><td>4</td></tr>
<tr><td>GIII</td><td>7.341</td><td>30</td><td>2.202</td></tr>
<tr><td>Total</td><td>7.746</td><td></td><td>2.519</td></tr>
</table>
2. Mayoristas No-DAMA: Se estimó en base al porcentaje promedio de venta a supermercados por mayoristas del Gran Asunción ubicados fuera de DAMA
349 x 91,98% = 321 tn

3. Estimación del porcentaje promedio de venta a supermercados por mayoristas de Otras Localidades.
Ciudad del Este = 0 tn
Encarnación: 2.016 x 69% = 1.391 tn
Cnel.Oviedo: 30 x 30% = 9 tn</td><td>Entrevistas con Mayoristas

Entrevista a Gerentes de supermercados

Entrevista a técn del MAG</td></tr>
</table>

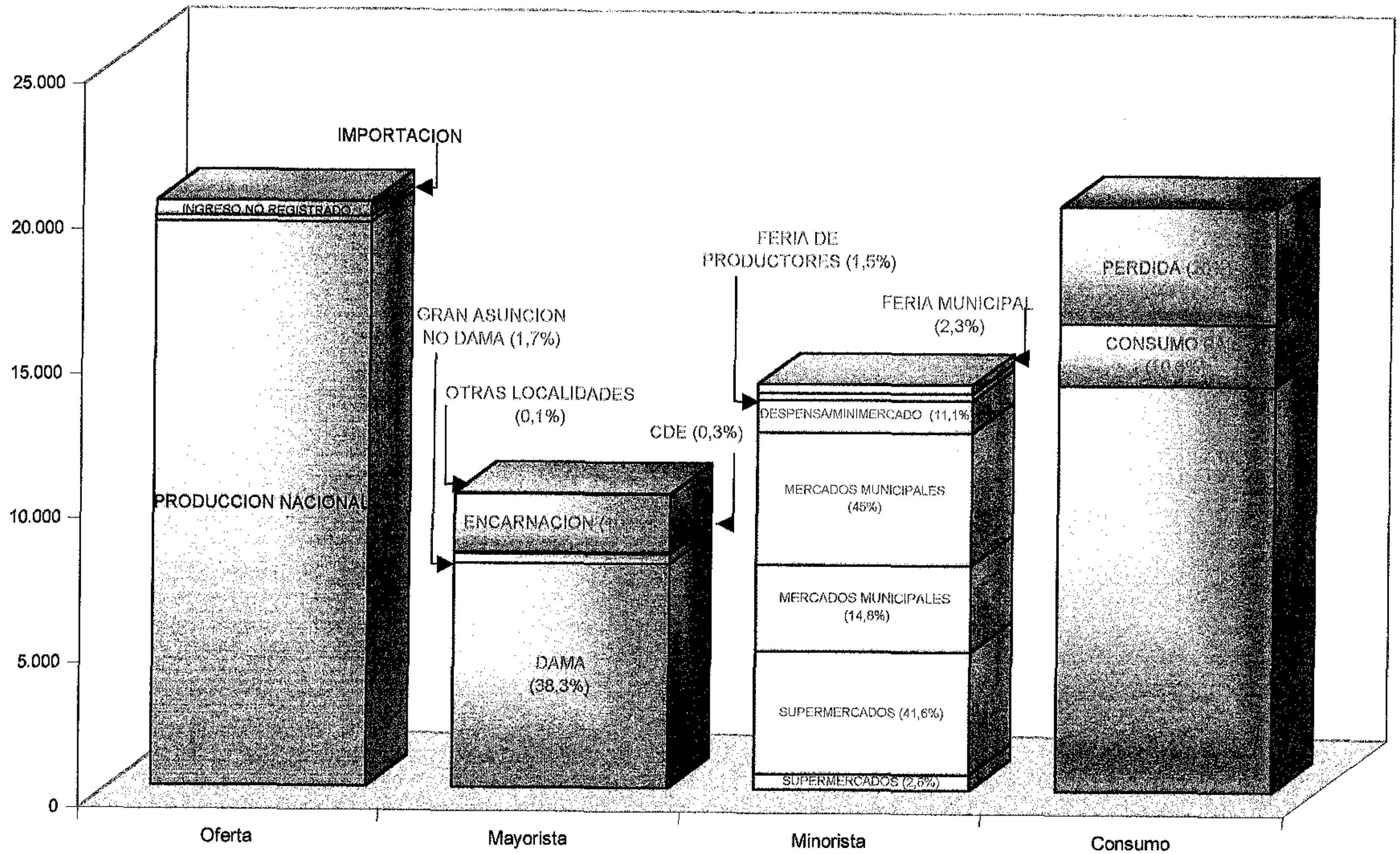
Table 131-C: (Continuation)

Otros minoristas		Del volumen total comercializado por mayoristas se resta las ventas a supermercados: 10.192 – 4.240 = 5.952 tn	Entrevistas a vendedores de Mercados Municipales
		Este volumen se distribuye proporcionalmente en base a preferencia por lugar de compra según la encuesta a consumidores: Mercado Municipal (77 %); Despensa/Minimercado (19%) y Feria Municipal (4%).	Encuesta a consumidores
▪ Mercado Municipal (C) A través de mayoristas	4.583	(C) 5.952 x 77% = 4.583 tn	
(D) Directo de oferta	3.000	(D) Volumen estimado según entrevistas a vendedores de los Mercados Municipales.	
▪ Despensa / Minimercado	1.131	5.952 x 19% = 1.131 tn	Encuesta a consumidores
▪ Feria Municipal	238	5.952 x 4% = 238 tn	Encuesta a consumidores
▪ Feria de Productores	300	Sumatoria de volumen comercializado por las Ferias de Productores, determinado en base datos proveídos por feriantes e informantes calificados	
Total minoristas	**14.028**		

Table 131-D: Methodology to estimate melon consumption volume. Year 2002

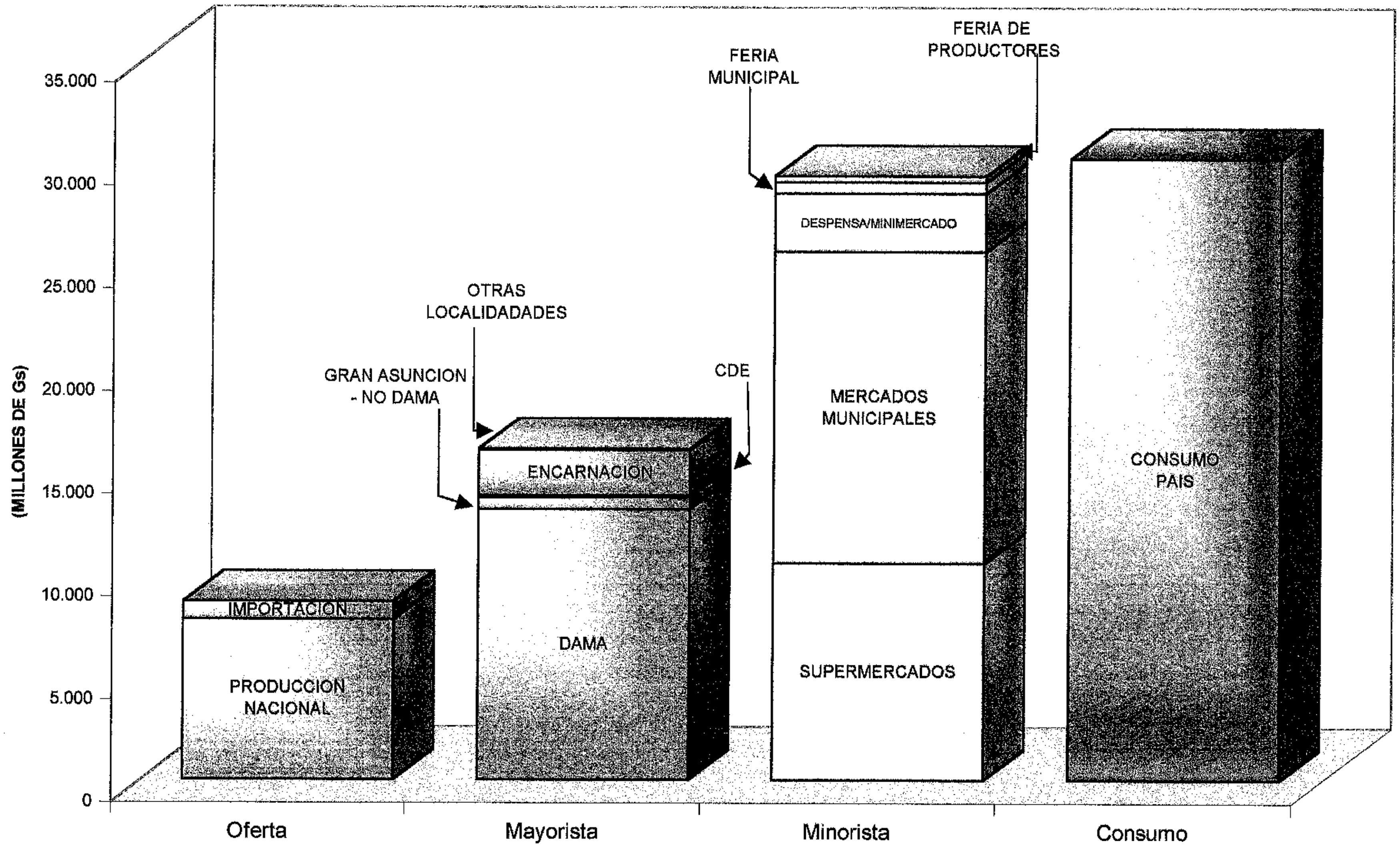
Consumidores	*Volumen (Ton)*	*Metodología de estimación*	*Fuente*
Consumo país	16.182	1. Se determina el volumen total comercializado por los minoristas: 14.028 Tn 2. Se estima un nivel de consumo resultante de la diferencia entre la oferta total y el volumen de la sumatoria de lo comercializado por minoristas, las exportaciones y las pérdidas en la comercialización: Consumo: 20.227 – (14.028 + 0 + 4.045) = 2.154 Tn 3.Volumen total de Consumo país (1 + 2) = 16.182 Tn	
Exportación	0	El Banco Central del Paraguay no registra exportación: 0 Tn	BCP
Pérdida	4.045	Se estima una pérdida del 20% de la oferta total por manipuleo en el proceso de comercialización: (20.227 x 20%) = 4.045 Tn	
Total	**20.227**		

Figure 37: Flow chart of melon commercialization in Paraguay (Volume in tons). Year 2002



Ref. Las letras y porcentajes dentro del gráfico tienen el mismo color de las columnas de valores de donde proviene cada segmento.

Figure 38: Flow chart of melon commercialization in Paraguay (in millions of Guaraníes). Year 2002



The melon supply in the Paraguay is represented by the available national production and for the melon of foreign origin that enters to the country. The melon of foreign origin comes from imports and entrances not registered that together total a volume of 727 tons, *Table 132.*

Table 132. Estimate of melon supply by origin in Paraguay. Year 2002

Origin	*Volume (Tons)*	*Percentage (%)*
National Production available	19.500	96,40
Imports	216	1,08
Not Registered entrances	511	2,52
Total	*20.227*	*100,00*

Source: Elaborated on data of DGA, CEASA (Brazil) DDV/MAG.

It dates registered by the Dirección General de Aduanas indicate that in the year 2002, 216 tons of melon entered from the Brazil to Paraguay, *Table E-4, Annex E.*

Melon distribution differs according to its origin. For instance, the national production is distributed by producers to wholesalers located in or outside DAMA, to wholesalers of the municipal markets of interior towns and to consumers in the municipal markets, or it is sold directly on farm by producers, *Figure 37.*

On the other hand, the foreign melon that enters to the country is channeled in its biggest proportion by wholesalers and, some by retailers (supermarkets). Supermarkets acquire the product in origin, specifically from CEASA and other markets of Foz of Yguazú (Brazil).

It is of highlighting that important volumes of the supply of national melon entered in DAMA is marketed by producers associated to organizations like NIKKEI, CEPACOOP, CECOPROA and FUNDECA, *Table 133.*

Table 133. Volume of national melon marketed in DAMA, by Association, Year 2002

Association	*Volume (Tons)*
NIKKEI	786,5
CECOPROA	142,29
CEPACOOP	124,42
FUNDECA	16
Total	*1,069,21*

Source: Elaborated based on interviews to managers of the associations.

Table 134 shows the volume melon channeled by wholesalers according to location place. It stands out the concentration of the melon supply through wholesalers located in DAMA.

Table 134. Volume of melon channeled by wholesalers, according to location area. Year 2002

Location Zone	*Volume (Tons)*	*Percentage (%)*
DAMA	7.746	76,00
GRAN ASUNCIÓN (EXCLUDED DAMA)	346	3,40
OTHER CITIES OF THE COUNTRY		
Ciudad del Este	54	
Encarnación	2.016	
Coronel Oviedo	30	
Sub total OTHER CITIES OF THE COUNTRY	2.100	20,60
Total	***10.192***	***100,00***

Source: Elaborated based on interviews to wholesalers located in DAMA, Gran Asunción, Ciudad del Este, Encarnación and Coronel Oviedo.

From the total supply of melon 50% is channeled by the wholesalers, these distribute the product to supermarkets and other retailers, *Figure 37.* Currently, supermarkets have gained since they capture 41,60% of all the volume marketed by wholesalers. The (58,40%) remaining it is sold by wholesalers to other retailers like those located in DAMA, municipal fairs, groceries and mainly in the municipal markets, *Table 135.*

Table 135. Volume of melon distribution from wholesalers to retailers. Year 2002

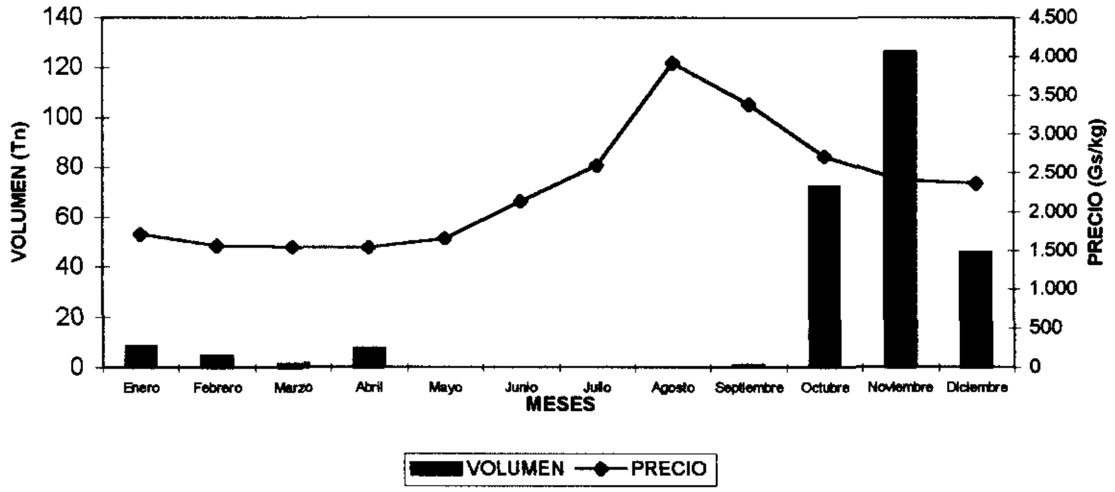
Retailers	*Volume (Tons)*	*Percentage (%)*
SUPERMARKETS	4.240	41,60
OTHER RETAILERS		
Municipal Markets	4.583	
Despensas/Minimercados	1.131	
Municipales Fairs	238	
Sub Total OTHER RETAILERS	5.952	58,40
Total	***10.192***	***100,00***

Source: Elaborated based on interviews to supplying wholesalers of supermarkets, feriantes other retailers.

2.13.2. Prices and seasonality

The analysis of the melon monthly prices behavior, according to data of the year 2002 from CECOPROA and CEPACOOP, it allows to identify price fluctuations that reflect correlation with the supply seasonality. It is observed that from January to September low or null volumes are marketed monthly, in this period the prices present sustained increments until they reach a top, to go down afterwards, *Figure 39.*

Figure 39: Volume and monthly price of melon. 2002



The volume marketed during the months of October to December reached 91,5% of the marketed total annual, coincident with the depression in the price levels, *Table E-6, Annex E.*

2.13.3. Value of commercialization according to origin and channel

2.13.3.1. Value of commercialization by origin

The total valued of the commercialization of the melon coming from the national production and the foreign product that entered to the country was estimated in 8.672 millions of Guaraníes, *Figure 38 and Table 136.* The biggest value in the commercialization comes from the national product that is very superior in volume compared to the foreign product, but, regarding prices the foreign is more expensive, see *Table 136.*

Table 136. Estimate of melon commercialization value by origin. Year 2002

Origin	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*	*Percentage (%)*
National	19.500	400	7.800	89,94
Foreign	727	1.200	872	10,06
Total	***20.227***		***8.672***	***100,00***

Source: Dear based on data of the Dirección General de Aduanas, CEASA (Brazil) and of the DDV/MAG.

Table 137 shows the sources of price estimation of melon:

Table 137. Prices established for melon commercialization . March 2003

Origin	***Price (Gs/Kg)***	***Observations***
National	400	It corresponds to on farm price, according to producer interviews
Foreign	1.200	It corresponds to purchase price based on data provided by wholesalers importers .
WHOLESALERS		
DAMA	1.700	Estimate based on interviews with wholesalers of DAMA.
Gran Asunción	1.700	Estimate based on interviews with wholesalers located outside DAMA.
Ciudad del Este	1.600	Estimate based on interviews with wholesalers of Ciudad del Este Municipal Markets.
Encarnación	1.100	Estimate based on interviews with wholesalers of Encarnación Municipal Market.
Coronel Oviedo	2.000	Sale price provided by technicians and wholesalers of the area.
RETAILERS		
Supermarkets	2.210	Estimate based on sale prices average of Great Asunción and Encarnacion's main supermarkets.
Municipal Markets	2.000	Estimate on sale prices average of San Lorenzo and Encarnación. Municipal Markets
Despensas/Minimercados	2.500	Estimate based on sale prices average in Despensas and Minimercados of San Lorenzo and Encarnación.
Municipales Fairs	2.300	Estimate based on sale prices average in Asunción and Encarnación Municipal Fairs.
Farmers Fairs	1.000	Estimate based on sale prices average in Farmers Fairs of Ciudad del Este and Encarnación.

2.13.3.2. Value commercialization according to wholesalers

Regarding wholesalers´ sales by location area, DAMA continues being the main place where the commercialization of the melon is carried out considering that approximately 82% of the total marketed value is carried out through wholesalers located in DAMA. It is of highlighting that the markets wholesalers located in other towns like Ciudad del Este, Gran Asunción and Coronel Oviedo market for a total value that doesn't exceed 15%, *Table 138.*

Table 138. Estimate of melon sales by wholesalers according to location area. Year 2002.

Zone	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*	*Percentage (%)*
DAMA	7.746	1.700	13.168	81,69
GRAN ASUNCION	346	1.700	588	3,65
OTHER CITIES OF THE COUNTRY				
Ciudad del Este	54	1.600	86	0,54
Encarnación	2.016	1.100	2.218	13,76
Coronel Oviedo	30	2.000	60	0,37
Sub Total OTHER CITIES OF THE COUNTRY	2.100		2.364	14,66
Total	*10.192*		*16.120*	*100,00*

Source: Based on interviews with wholesalers of the different study areas.

2.13.3.3. Value of commercialization according to retailers

On the other hand, sales carried out by the retailers to consumers were estimated in 29.396 millions of Guaraníes, 35,91% corresponds to melon marketed in the supermarkets, valued in 10.555 millions of Guaraníes.

The estimates of sales carried out by other retailers highlight that marketed through the municipal markets that reached an approximate valued of 15.166 millions of Guaraníes, representing approximately 80% of that marketed by this channel, *Table 139*

Table 139. Estimate of melon sales by retailers. Year 2002

Retailers	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millions of Gs)*	*Percentage (%)*
SUPERMARKETS	4.776	2.210	10.555	35,91
OTHER RETAILERS				
Municipal Markets	7.583	2.000	15.166	51,59
Despensas/Minimerc.	1.131	2.500	2.828	9,62
Municipal Fairs	238	2.300	547	1,86
Fairs of Producers	300	1.000	300	1,02
Sub Total OTHER RETAILERS	9.252		18.841	64,09
Total	*14.028*		*29.396*	*100,00*

Source:Based on prices collected in the purchase places.

2.13.3.4 Value of commercialization according to final consumption destination

The valued of consumers' purchases through all the commercialization channels reached an estimate of 30.256 millions of Guaraníes, coming from the sales to consumers (29.394 millions of Guaraníes) and the value corresponding to sales of 2.154 tons valued at the price received by the producer (400 Gs/Kg).

Table 140 . Estimated melon commercialization value according to final consumption destination. Year 2002

Retailers	*Volume (Tons)*	*Price (Gs/Kg)*	*Value (Millones de Gs)*
Country Consumption (through retailers)	14.027	2.095,53*	29.394,00
Country Consumption (on farm)	2.154	400,00	861,60

** Correspond to average prices weighted by retailers sales volume (see table 139).*

2.13.4. Margins of commercialization of a representative channel

The commercialization margins according to the origin of the offer indicates that the difference among the price paid by the consumer and the price average received by the producer on farm is 1.810 Gs/Kg, representing a total margin of commercialization of 82%, *Table 141.*

Table 141. Total margin of commercialization of melon. 2002

Concept	*Value (Gs/Kg)*	*Margin (Gs/kg)(%)*
On farm price	400	
Wholesalers selling price	1.700	
Retailers selling price	2.210	1.810 (82%)

Source: Estimate based on data provided by wholesalers, retailers producers.

SECTION III

SECTION III: PROFILE OF THE CONSUMERS

3.1. Consumers profile by segments

The analysis of the survey results allowed to group consumers on four segments conformed by the main reason that defines preferences to purchase in a place. The segments analyzed are: a) price, b) availability and distance, c) comfort, and d) quality and dependability.

Consumers' characteristics were analyzed inside each segment. The variables used for this analysis were sex, age, academic and income level. Also, places of purchase preferences were determined. Moreover, consumers' perceptions regarding consumption trends and the consumer's approaches considered at the moment to decide the purchase of the products under study (vegetables, fruits, bean and manioc) were analyzed.

In addition, per-cápita consumption of the 13 items under study was considered for each segment with respective standard deviation. In this regard, it is important to mention that the estimate was carried out with the purpose of analyzing the existent variability among the items corresponding to groups (vegetables or fruits).

Table 142. Quantity of answers for main reason of the consumers' preference, according to local of purchase of agricultural products. Gran Asunción, Ciudad del Este and Encarnación. Year 2003.

Local preferido de compra	*Razón principal de preferencia*						*Total*
	Calidad	*Comodidad*	*Confiabilidad*	*Disponibilidad*	*Distancia*	*Precio*	
a) Supermercado							
• Cantidad (en número)	52	154	4	28	52	98	**388**
• Cantidad (en porcentaje):							
Sobre el total de preferencia por supermercado	13,4	39,7	1,0	7,2	13,4	25,3	**100**
Sobre el total de la razón principal de preferencia	50,0	81,5	40,0	53,8	53,1	40,7	**55,9**
Sobre el total de encuestados	7,5	22,2	0,6	4,0	7,5	14,1	**55,9**
b) Otros locales (mercados municipales, minimercados, ferias y despensas)							
• Cantidad en número	52	35	6	24	46	143	**306**
• Cantidad en porcentaje:							
Sobre el total de preferencia por otros locales	17,0	11,4	2,0	7,8	15,0	46,7	**100**
Sobre el total de la razón principal de preferencia	50,0	18,5	60,0	46,2	46,9	59,3	**44,1**
Sobre el total de encuestados	7,5	5,0	0,9	3,5	6,6	20,6	**44,1**
Total	**104**	**189**	**10**	**52**	**89**	**241**	**694**
Porcentaje sobre el total de encuestados	**15,0**	**27,2**	**1,4**	**7,5**	**14,1**	**34,7**	**100**

***Observation:** it corresponds a main reason of preference had interviewed*

The observed values do not reflect real per-cápita consumptions because it requires to be measured during a specific period of time that take account of the seasonality of the national production supply. The obtained results from these analysis are presented in Tables and Figures, the respective tests of Pearson $\chi 2$ are presented in those cases where the application was possible to carry out, indicating the dependence or not among the preference reasons and the considered variables.

Based on the values observed in the previous Table, according to the probability of the main reasons of preference for the purchase local, they grouped four segments: to) price, b) availability and distances, c) comfort, and d) quality and dependability. This cluster allowed to carry out the analysis of the characteristics of the consumers, the results are presented next.

Figure 40. Main reason of preference, manifested by the consumers, for the local of purchase of agricultural products, according to sex, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

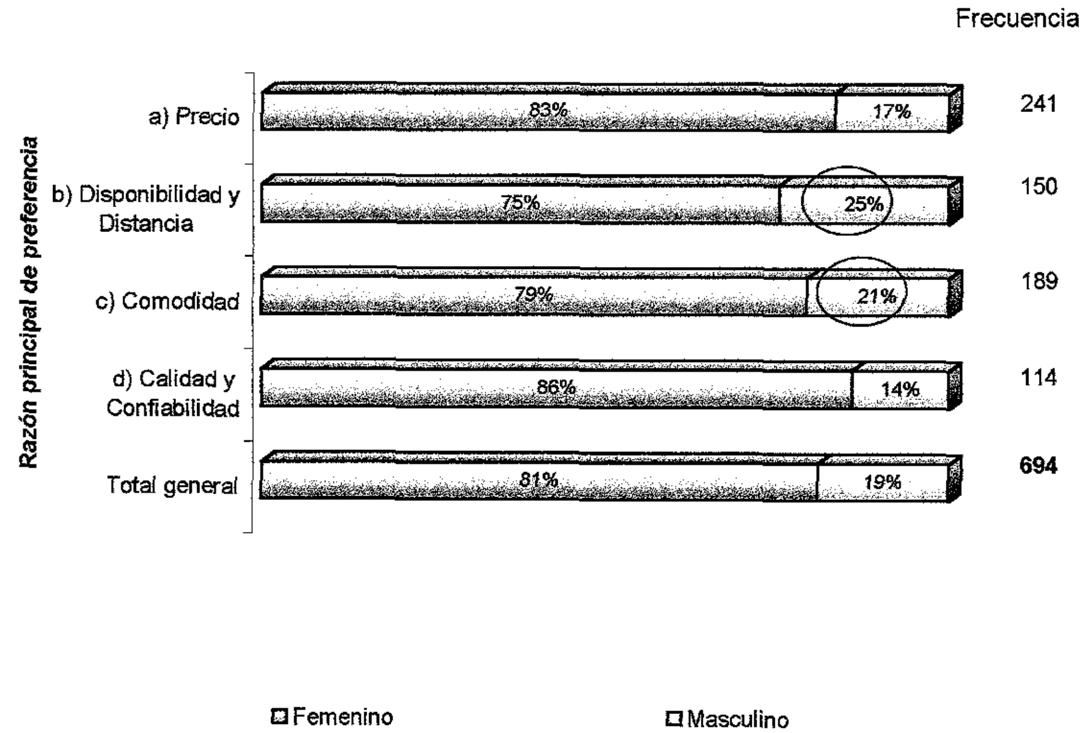


Table 143. Test of independence between sex and main reason of the consumers' preference for the local of purchase of agricultural products. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

Test	Value	GL	Significance level
χ^2 *de Pearson*	6,183	3	0,103 (ns)

Figure 40 shows that the proportion of female buyers is high, for all the segments. The proportion of male buyers increase lightly among buyers that have "comfort" and "availability-distance" as preference reason for the local of purchase. Nevertheless, the test of χ^2 reveals that the dependence between the variable sex and preference reason for the purchase place is not significant.

Figures 41. Main reason of preference, manifested by the consumers, for the local of purchase of agricultural products, according to age, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

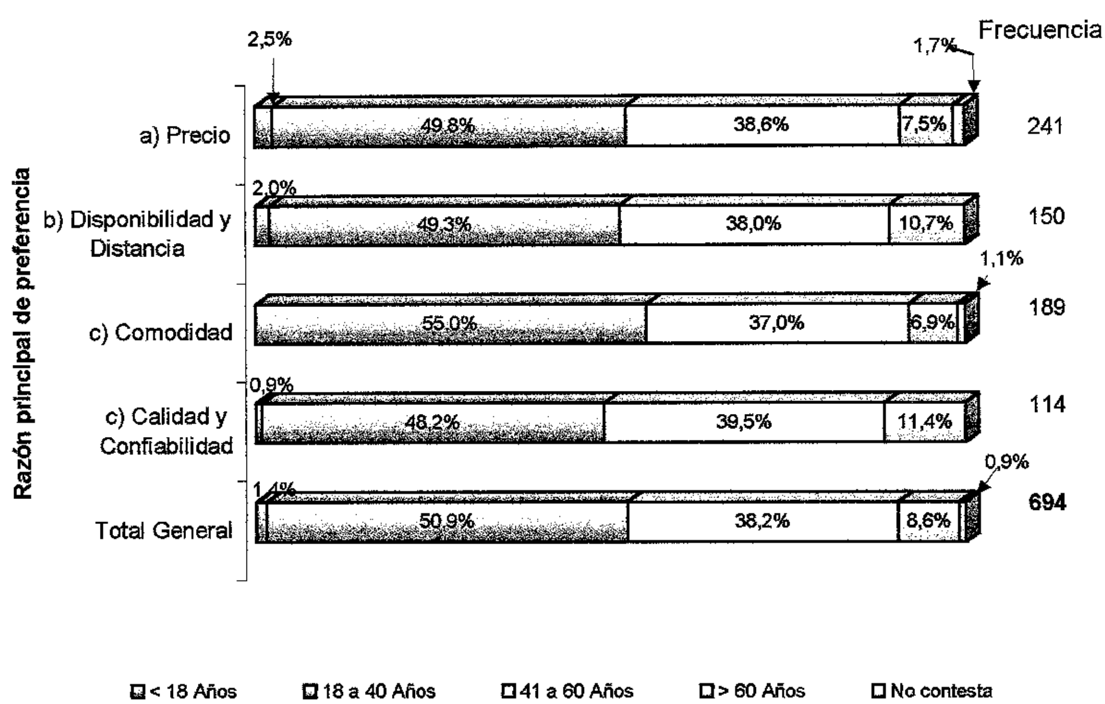


Table 144. Test of independence between age and the main reason of the consumers' preference for the local of purchase of agricultural products. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

Test	Value	GL	Significance level
χ^2 *de Pearson*	8,936	9	0,443 (ns)

Figure 41 shows that the greatest proportion of buyers was between 18 and 40 years old, for all the segments. The test of χ^2 reveals that the dependence between consumer's age and preference reason for purchase place, is not significant.

Figure 42. Main reason of preference, manifested by consumers, for the local of purchase of agricultural products, according to level of academic formation, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

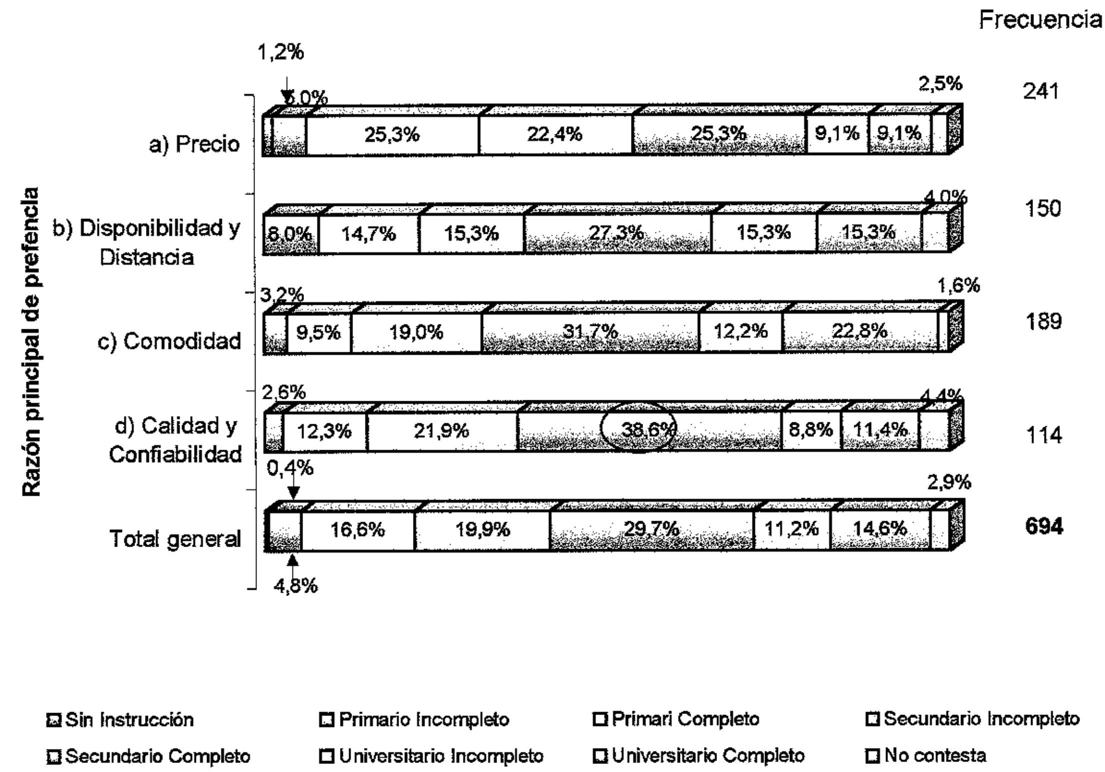


Table 145. Test of independence between level of academic formation and the main reason of consumers' preference for local of purchase of agricultural items. Gran Asunción, Ciudad del Este and Encarnación. Year 2003.

Test	Value	GL	Significance level
χ^2 *de Pearson*	55,441	18	0,000 (**)

The academic level of buyers presents high variability inside all the segments. The test of χ^2 reveals that the dependence between academic level and preference reason for the purchase place is highly significant (less than 1% of probability error).

Among the buyers that manifested "quality-dependability" as preference reason for purchase place, the greatest proportion belongs to secondary academic level, either incomplete or complete. Those that consider "comfort" as more important belong to complete secondary academic levels or university students, and, those that mentioned "price", have primary or secondary education completed.

Figure 43 Main reason of preference, manifested by consumers, for local of purchase of agricultural products, according to income level (in thousands of Guaraníes), in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

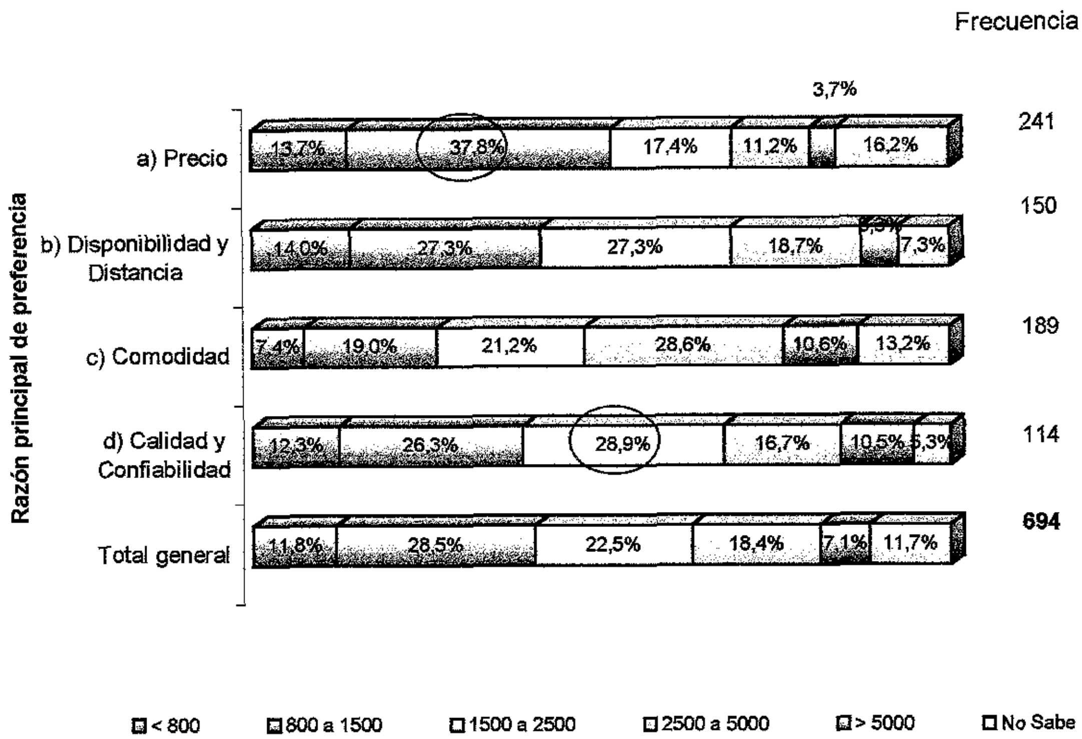


Table 146. Test of independence among income level and main reason of consumers' preference for the local of purchase of agricultural products. Gran Asunción, Ciudad del Este and Encarnación. Year 2003.

Test	Value	GL	Significance level
χ^2 *de Pearson*	52,867	15	0,000 (**)

The family income level of buyers presents high variability inside all the segments. The test χ^2 reveals that the dependence between family income and the preference reason for purchase place is highly significant (less than 1% of error probability).

Among the buyers that manifested "price" as the main reason of preference for the purchase place, the greatest proportion belongs to those that have income level between 800.000 and 1.500.000 Guaraníes, while those that consider "comfort" as more important have income between 2.500.000 and 5.000.000 Guaraníes.

Figura 44. Main reason of preference, manifested by consumers, for local of purchase of agricultural products, and the perception of the reasons of consumption decrease or not of fruits and vegetables in the last year, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

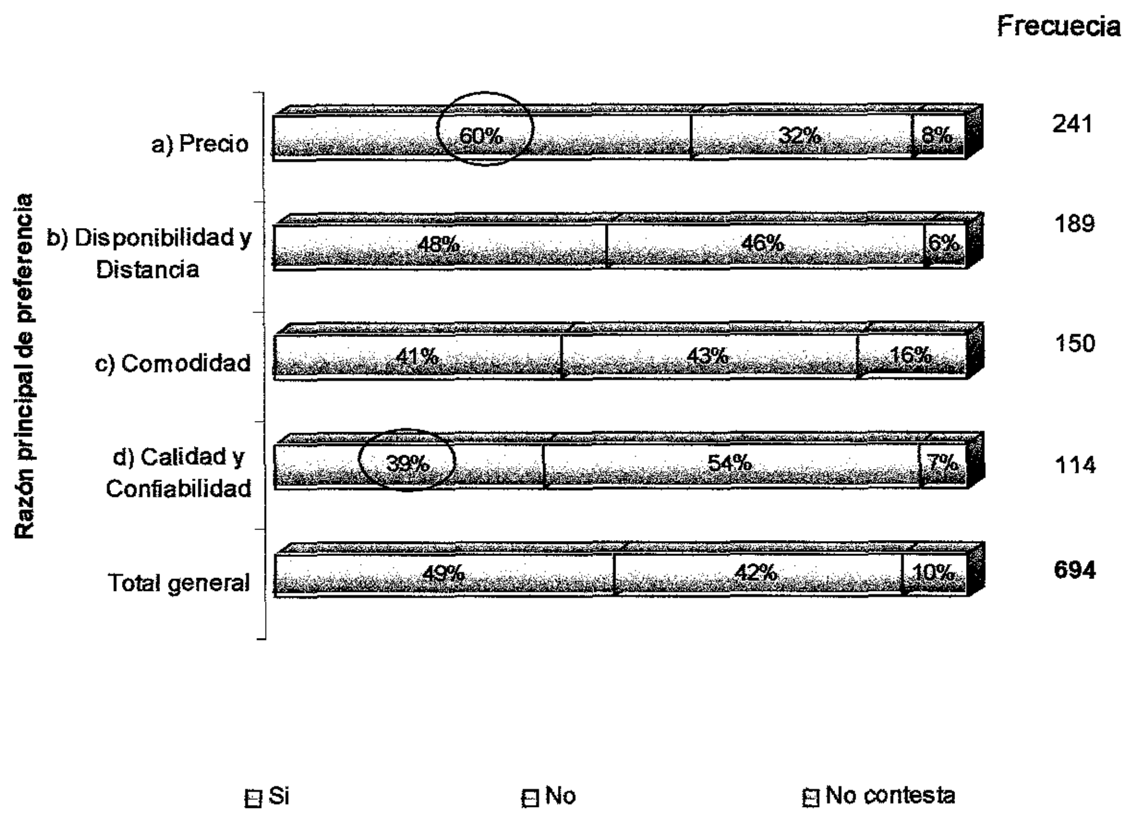
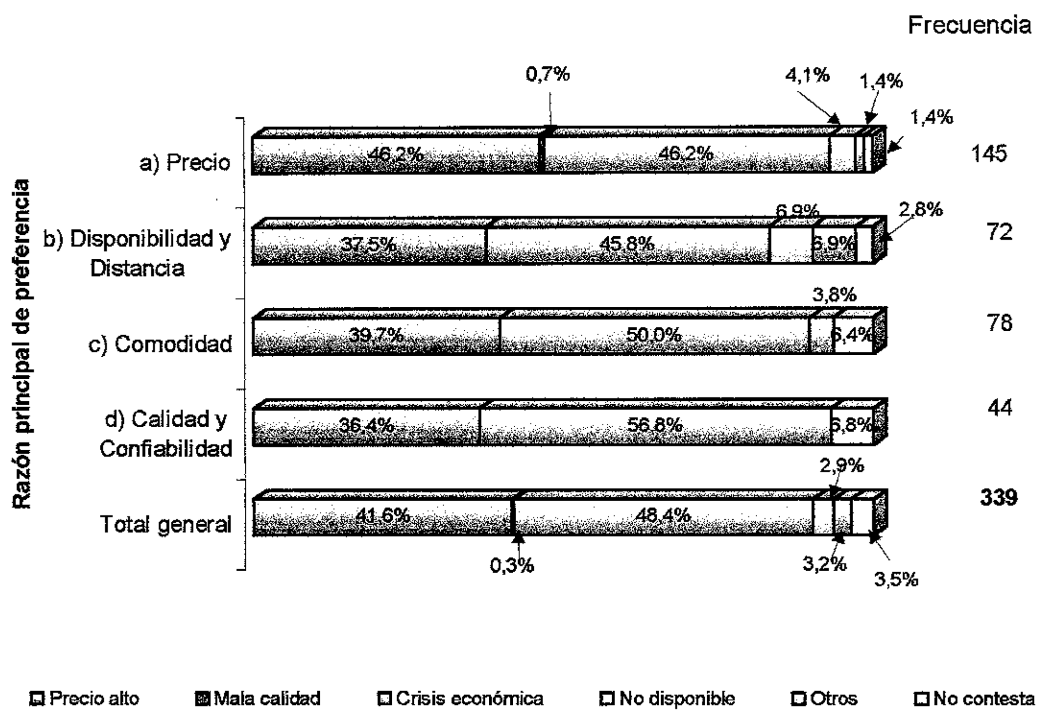


Figure 44 shows that the proportion of buyers that manifested that the consumption diminished in the last years, in the segment corresponding to price as more important reason of preference for the purchase place, is the highest. Among those that manifested quality and dependability like preference reasons, only 39% considers that the consumption has diminished.

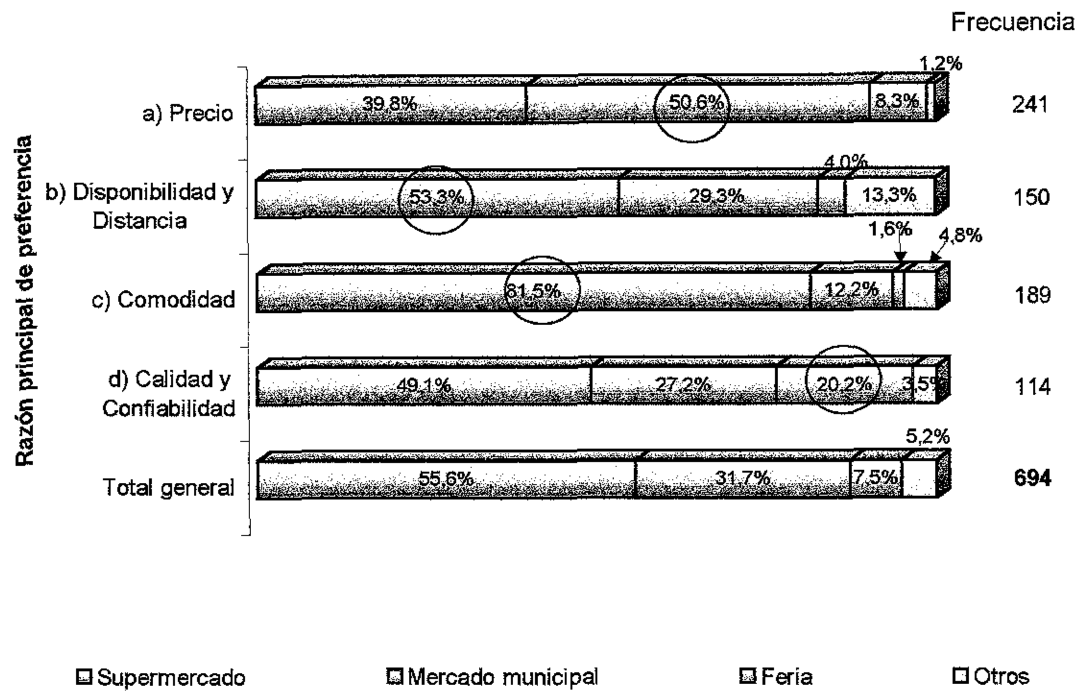
Figure 45. Main reason of preference, manifested by consumers, for local of purchase of agricultural products, and the perception of the reasons of consumption decrease of fruits and vegetables in the last year, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003



The economic crisis and high prices of the items at the different locals of sales were pointed out by consumers as the main reasons for the decrease of fruits and vegetables consumption in the last year. Marked differences are not observed among segments with relationship to the reasons.

The observed frequencies, according to Figures 45, correspond to consumers that have manifested that consumption of fruits and vegetables diminished in the last year.

Figure 46. Local for preferable purchase of agricultural products, manifested by consumers and main reason of preference. in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

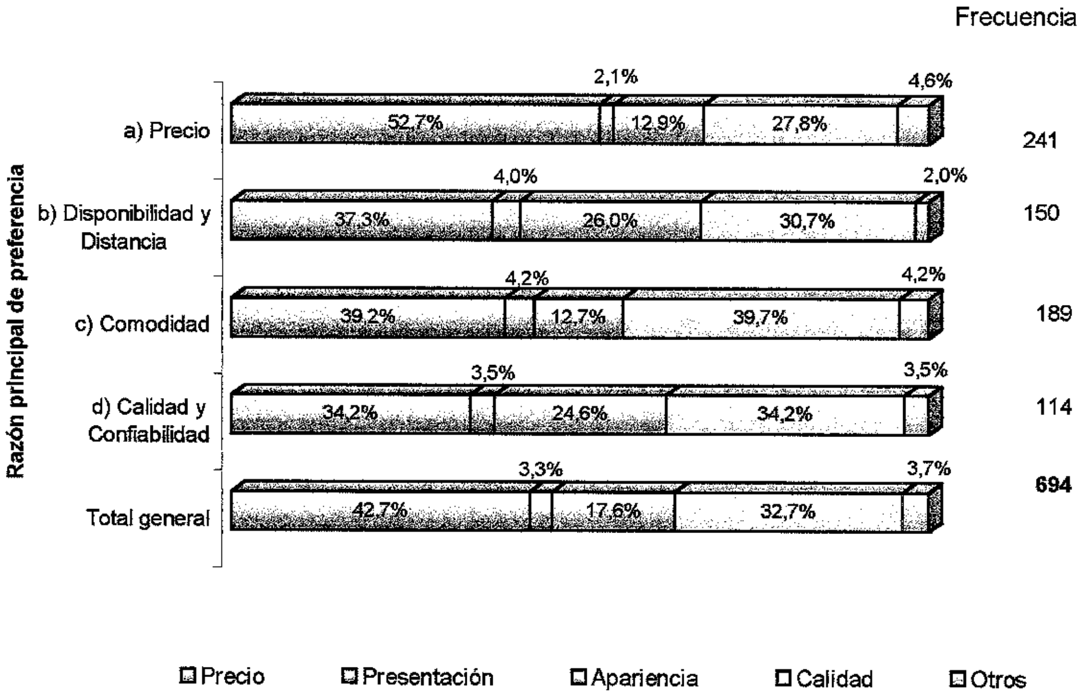


More than 50% of consumers that manifested "price" as the main preference reason for purchase at a local prefer to buy in municipal markets; also, the proportion of those that prefer to buy in supermarkets is important.

The main proportion that prefers to buy in supermarkets mentioned "comfort" as the main reason of preference. The consumers that prefer to buy in supermarkets are also important among those that mentioned "quality-dependability" and "availabity-distance" as preference reasons.

Figure 46 shows an important proportion of buyers that prefers to buy at fairs, among those that manifested "quality-dependability " as preference reasons.

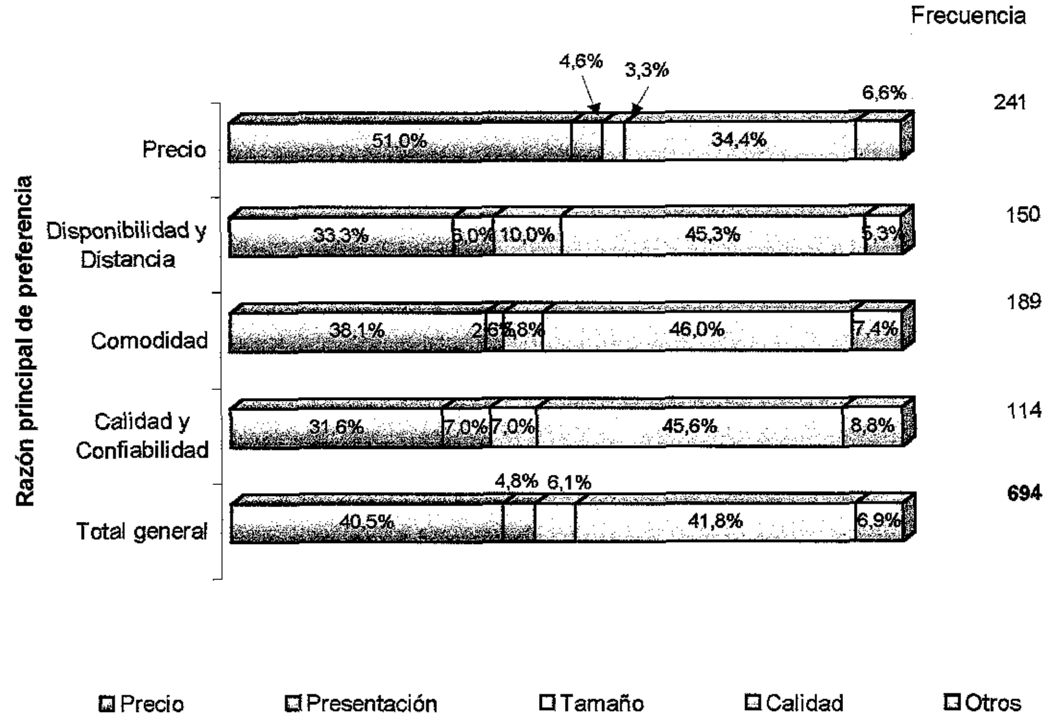
Figure 47. Main reason of preference, manifested by consumers, for local of purchase of agricultural products, and aspects considered at the moment to decide the purchase of vegetables, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003



The price was indicated by the greatest proportion of consumers, from all the segments in the analysis, as the main aspect considered at the moment to decide the purchase of vegetables, and, more specifically in the segment than considers "price" as the main reason of preference for the sale local.

The quality of the vegetables is another important aspect considered by consumers, on the other hand, for those consumers that have as reason of preference "availability-distance" and "quality-dependability" appearance has a relative importance.

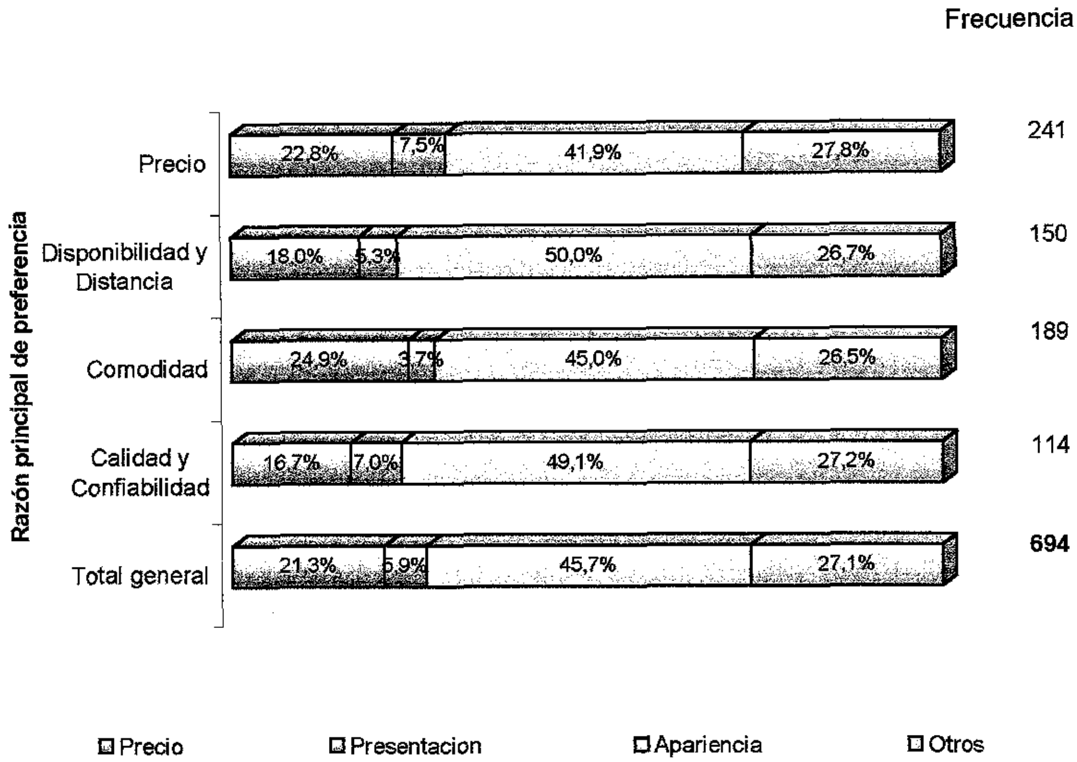
Figure 48. Main reason of preference, manifested by consumers, for local of purchase of agricultural products, and aspects considered at the moment to decide the purchase of fruits, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003



To decide the purchase of fruits, price is the aspect indicated by the greatest proportion, continued by "quality ", among the consumers of the segment that considers price as the more important reason of preference for the local of supply of the agricultural items.

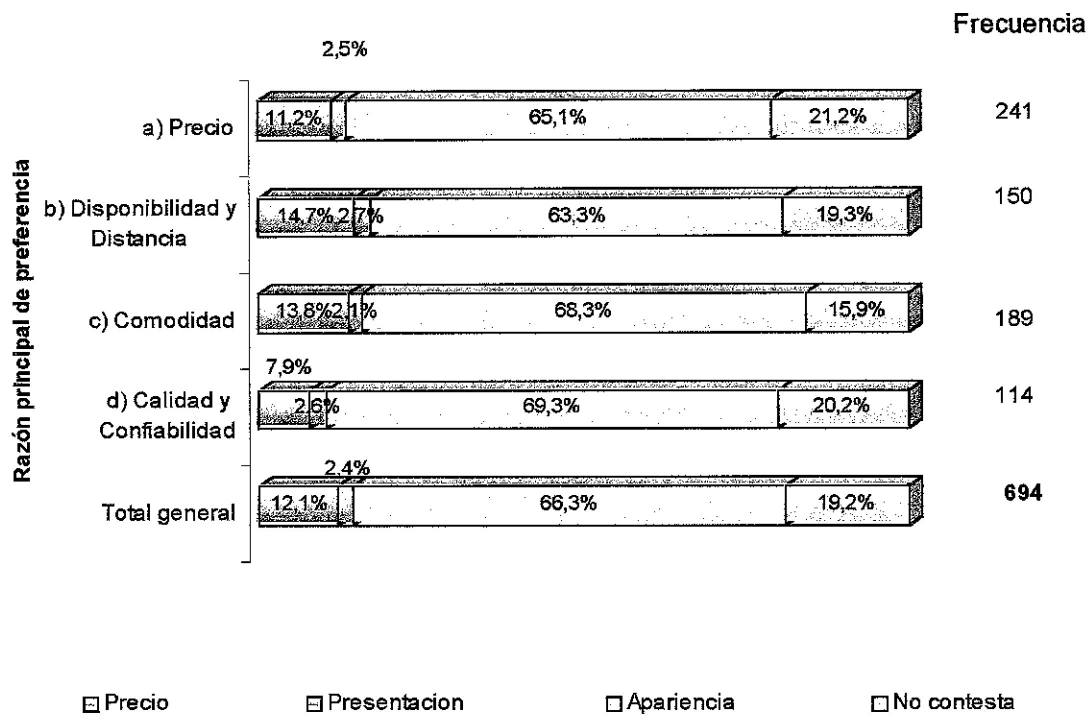
The quality of the fruits is the aspect mentioned by the greatest proportion of those that have as preference reason for the local of purchase "availability-distance", "comfort" and "quality-dependability".

Figure 49. Main reason of preference, manifested by consumers, for local of purchase of agricultural products, and aspects considered in the moment to decide poroto's purchase, in percentage. Great Asunción, City of the East and Incarnation. Year 2003



The appearance of the product offered is the aspect indicated by the greatest proportion of consumers from the segments considered in the analysis at the moment to decide to buy poroto.

Figure 50. Main reason of preference, manifested by consumers, for local of purchase of agricultural products, and aspects considered in the moment to decide manioc purchase, in percentage. Gran Asunción, Ciudad del Este and Encarnación. Year 2003



The greatest proportion of agricultural products consumers, when decide to buy manioc, consider the product appearance as the more importance aspect. They do not consider the preference reason for the local of supply.

Table 147. Per-cápita consumption (PCC) average estimated in grams/day and monetary value estimated in Guaraníes, of the agricultural items in study, according to main reason of preference for purchase local. Gran Asunción, Ciudad del Este and Encarnación. Year 2003

Rubro Agrícola	Razón de preferencia								Total general	
	Calidad y confiabilidad		Comodidad		Disponibilidad y distancia		Precio			
	CPC g/día	Valor G	CPC g/día	Valor G	CPC g/día	Valor G	Consumo g/día	Valor G	Consumo g/día	Valor G
Tomate	76,0	284,62	108,7	407,08	101,6	380,49	98,2	367,76	96,13	359,99
Pimiento	31,5	93,40	46,3	137,28	43,6	129,27	41,1	121,86	40,63	120,45
Zanahoria	58,1	146,06	100,1	251,65	92,8	233,30	64,4	161,90	78,85	198,23
Zapallo	43,1	53,66	60,2	74,95	45,0	56,03	70,8	88,15	54,78	68,19
Cebolla	63,3	121,47	95,7	183,65	95,1	182,50	80,1	153,71	83,55	160,33
Papa	73,5	161,41	105,8	232,34	92,8	203,79	78,9	173,26	87,75	192,70
Mandioca	174,2	103,47	173,7	103,18	263,1	156,28	205,9	122,30	204,23	121,31
Poroto	19,5	69,11	19,4	68,75	23,1	81,87	26,4	93,56	22,10	78,32
Naranja	114,0	247,84	150,0	326,10	241,0	523,93	69,4	150,88	143,60	312,19
Piña	115,6	367,03	197,1	625,79	209,0	663,58	207,9	660,08	182,40	579,12
Banana	146,3	134,16	161,5	148,10	125,5	115,08	200,0	183,40	158,33	145,18
Sandia	255,7	187,17	255,7	187,17	167,9	122,90	175,4	128,39	213,68	156,41
Melón	144,3	302,45	217,9	456,72	141,2	295,96	134,5	281,91	159,48	334,26

Table 147 shows that the quantities of per-cápita consumption estimated for each agricultural product varies among the segments according to the reasons of consumers' preference by the purchase local. The consumers that mentioned "comfort" as the main reason of preference for the purchase local are those that have greater per-cápita consumption of tomato, pepper, carrot, onion and potato and watermelon and melon.

The segments of consumers that consider quality and dependability as the main reason of preference for the purchase local have smaller per capita consumption than consumers of other segments in vegetables (tomato, pepper, carrot, pumpkin, onion and potato), also, in the manioc consumption, poroto and pineapple.

Those that mentioned "price" as the main reason of preference have per-cápita consumption of vegetables lightly superior than those that considered quality and dependability, however inferior to the those that mentioned other preference reasons, except pumpkin that is more consumed for this group.

Manioc and bean are produce consumed in big quantities by consumers that have manifested "price " as main reason of preference for the purchase local.

It is also pointed out that consumption standard deviations are high for all cases, consequently the values observed indicate only tendencies of consumption behavior for consumers that buy the studied items (see Annex F).

In the following table the percentage relationships of the vegetables and the fruits are presented inside each main reason of preference by the purchase local.

Table 148. Consumption per-cápita (CPC) and monetary value, estimated in percentage on the total of vegetables and on the total of fruits respectively, according to main reason of preference for the purchase local. Gran Asunción, City of the East and Encarnación. Year 2003

	Razón de preferencia								Total general	
	Calidad y confiabilidad		Comodidad		Disponibilidad y distancia		Precio			
Hortaliza	CPC	Valor	CPC	Valor	CPC	Valor	Consumo	Valor	Consumo	Valor
Tomate	22,00	33,07	21,03	31,63	21,58	32,10	22,65	34,48	21,76	32,73
Pimiento	9,12	10,85	8,96	10,67	9,26	10,91	9,48	11,42	9,20	10,95
Zanahoria	16,82	16,97	19,37	19,55	19,71	19,68	14,86	15,18	17,85	18,02
Zapallo	12,47	6,23	11,65	5,82	9,56	4,73	16,33	8,26	12,40	6,20
Cebolla	18,32	14,11	18,52	14,27	20,20	15,40	18,48	14,41	18,92	14,58
Papa	21,27	18,75	20,47	18,05	19,71	17,19	18,20	16,24	19,87	17,52
Total	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00
Fruta										
Naranja	14,69	20,01	15,27	18,70	27,24	30,44	8,82	10,74	16,75	20,44
Piña	14,90	29,63	20,07	35,89	23,63	38,55	26,41	46,99	21,27	37,92
Banana	18,86	10,83	16,44	8,49	14,19	6,69	25,41	13,06	18,46	9,51
Sandia	32,96	15,11	26,03	10,73	18,98	7,14	22,28	9,14	24,92	10,24
Melón	18,60	24,42	22,18	26,19	15,96	17,19	17,09	20,07	18,60	21,89
Total	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00	100,00

Table 148 shows that tomato and potato present bigger percentage levels of consumption per-cápita, for the consumers segmented for preference reasons.

The smallest percentage of consumption among the vegetables is pepper when referred to volume, but in relation to the monetary value, pumpkin is the smallest, for all the analyzed preference reasons.

In relation to fruits great variation is observed among the segments according to consumers' preference reasons for the purchase local. It is noticeable that watermelon is of more consumption per-layer, in consumption percentage per-cápita, for those that consider as main preference reason to quality and dependability and comfort, and pineapple for the other reasons. Nevertheless, when it is considered monetary value, the biggest percentages are observed in pineapple, inside all the reasons.

The smallest percentages related to volume are found in orange consumption, for all the preference reasons, except for readiness and distances. Regarding the value percentages, banana represents the smaller value for all the reasons, except "price".

3.2. Profile of consumers by preference for purchase place

The data analysis considered a cluster of the consumers according to their preference for the purchase place. The considered groups were: to) consumers that prefer to buy in supermarkets, and b) consumers that prefer to buy in other places (despensas, municipal fairs, fair of producers).

The corresponding results are presented next:

Table 149. Test of independence among characteristics of the consumers and preference for purchase place. Year 2003

Test	Consumers' characteristics			
	Family income	**Family head activity**	**Sex**	**Place of living**
χ^2 de Pearson	25,818	22,930	3,213	42,1
Significance level	$0{,}000^{**}$	$0{,}000^{**}$	$0{,}073^{ns}$	$0{,}000^{**}$

Ref: ns = efecto no significativo
*** = efecto altamente significativo (menos de 1% de probabilidad de error)*
Ref: ns = non significant effect
*** = highly significant effect (less than 1% of error probability)*

Table 149 shows that the level of family income, the family head main activity and the place of living are characteristics that impact significantly on consumer's preference for the place of purchase of the agricultural products studied. On the other hand, dependence relationship is not evident between the variable sex and the preference by the purchase place.

Table 150 shows the percentage relationships of the characteristics that influence significantly on the preference of the consumers for the purchase place.

Table 150. Characteristics of the consumers and preference for place of purchase of agricultural products, in percentage. Gran Asunción, Ciudad del Este and Encrnación. Year 2003

Características de los consumidores	Lugar preferido para la compra de productos agrícolas		
	Supermercados	Otros lugares de compra	Total
Nivel de ingreso familiar (en miles de guaraníes)			
< a 800	46,2	53,8	**100**
800 a 1500	51,5	48,5	**100**
1500 a 2500	52,8	47,2	**100**
2500 a 5000	72,7	27,3	**100**
> a 5000	69,4	30,6	**100**
Actividad principal del jefe de familia			
Profesional universitario	77,0	23,0	**100**
Técnico	55,8	44,2	**100**
Docente/militar/policía	78,9	21,1	**100**
Ama de casa	35,0	65,0	**100**
Otros	52,9	47,1	**100**
Zona donde vive la familia			
Área Metropolitana	61,4	38,6	**100**
Encarnación	62,0	38,0	**100**
Ciudad del Este	29,2	70,8	**100**

In relation to the level of family income can be mentioned that consumers with higher incomes than 800.000 Guaraníes prefer to buy in supermarkets than other purchase places, the most important differences are observed in those whose income levels exceed 2.500.000 Guaraníes.

Regarding the level of consumers' instruction it can be mentioned that university professionals and the group that it includes to educational, military and policemen, prefer to carry out their purchases in supermarkets, while the housewives prefer other places.

When considering the area where people live, it is observed that families from Gran Asunción and Encarnación are similar in their preference to carry out their purchases in supermarkets; while those of Ciudad del Este manifested preference for other places.

Nevertheless, it should be mentioned that in Ciudad del Este, the proportion of people interviewed in supermarkets was smaller than in other places, and that in turn, the families usually carry out their purchases in Foz of Yguazú (Brazil).

3.3 Relationship between level of income and decision factors to purchase vegetables, fruits, bean and manioc

To analyze the aspects considered at the moment to decide the purchase of vegetables, fruits and manioc, consumers were grouped according to their income level. The results are presented next:

Table 151. Test of independence among income level and approaches considered to decide the purchase of vegetables, fruits, poroto and manioc, Gran Asunción, Ciudad del Este and Encarnación. Year 2003

Test	Agricultural items			
	Vegetables	Fruits	Bean	Manioc
χ^2 *de Pearson*	31,054	35,724	24,42	36,467
Significance level	$0{,}013^{*}$	$0{,}002^{**}$	$0{,}224^{ns}$	$0{,}002^{**}$

Ref: *ns* = *non significant effect*
* = *significant effect (less than 5% of error probability)*
** = *highly significant effect (less than 1% of error probability)*

Table 151 shows that dependence relationship exists between family income level and the aspects considered to purchase vegetables, fruits and manioc, in contrast, the aspects considered to buy poroto, don't evidence dependence relationship with the income level. The corresponding percentage relationship is presented in the following Table:

Table 152. Percentage relationship among level of family entrance and factors considered by the consumers for the purchase of vegetables, fruits and manioc. Gran Asunción, City of the East and Encarnación. Year 2003.

Criterios considerados por los consumidores	Nivel de ingreso familiar (Miles de Gs)				
	< a 800	800 a 1.500	1.500 a 2.500	2.500 a 5.000	> a 5.000
Hortalizas(*)					
Precio	47,6	41,9	47,7	38,3	24,5
Apariencia, Color, presentación.	12,6	20,2	22,2	27,3	40,8
Tamaño	0,7	-	1,7	1,6	2,0
Calidad	37,8	35,4	26,7	31,3	32,7
Otros	1,4	2,5	1,7	1,6	-
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Frutas(**)					
Precio	44,1	43,4	46,0	32,8	18,4
Embalaje, limpieza	2,1	4,0	3,4	7,8	12,2
Tamaño	6,3	4,5	4,5	7,0	14,3
Calidad	44,1	46,5	40,3	49,2	53,1
Otros	3,5	1,5	5,7	3,1	2,0
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Mandioca					
Precio	17,5	9,6	16,5	6,3	6,1
Apariencia	28,7	47,5	47,2	45,3	40,8
Variedad	-	0,5	0,6	-	2,0
Calidad	30,1	28,3	19,3	20,7	24,5
Época y otros	23,8	14,1	16,5	18,8	26,5
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

(*) Hortalizas consideradas: tomate, pimiento, zanahoria, zapallo, cebolla y papa
(**) Frutas consideradas: naranja, piña, banana, sandía y melón

To purchase vegetables it is observed that for all income levels, the most important variables considered constitute price and quality. This way, for people with incomes inferior to 1.500.000 Guaraníes, prices have high weight on the purchase decision. In turn, it is evidenced that the aspect appearance-color-presentation is the most important for people with incomes higher than 5.000.000 Guaraníes.

Regarding the purchase of fruits, price is an important considered factor, mainly for those that have incomes inferior to 2.500.000 Guaraníes. The quality is another factor that has importance for consumers of any income level; on the other hand, packing, cleanliness, and size are factors of relatively smaller importance for those that have incomes higher than 2.500.000 Guaraníes.

As for the decision for the manioc purchase, product appearance is the most important factor, mainly for those that have incomes higher than 800.000 Guaraníes.